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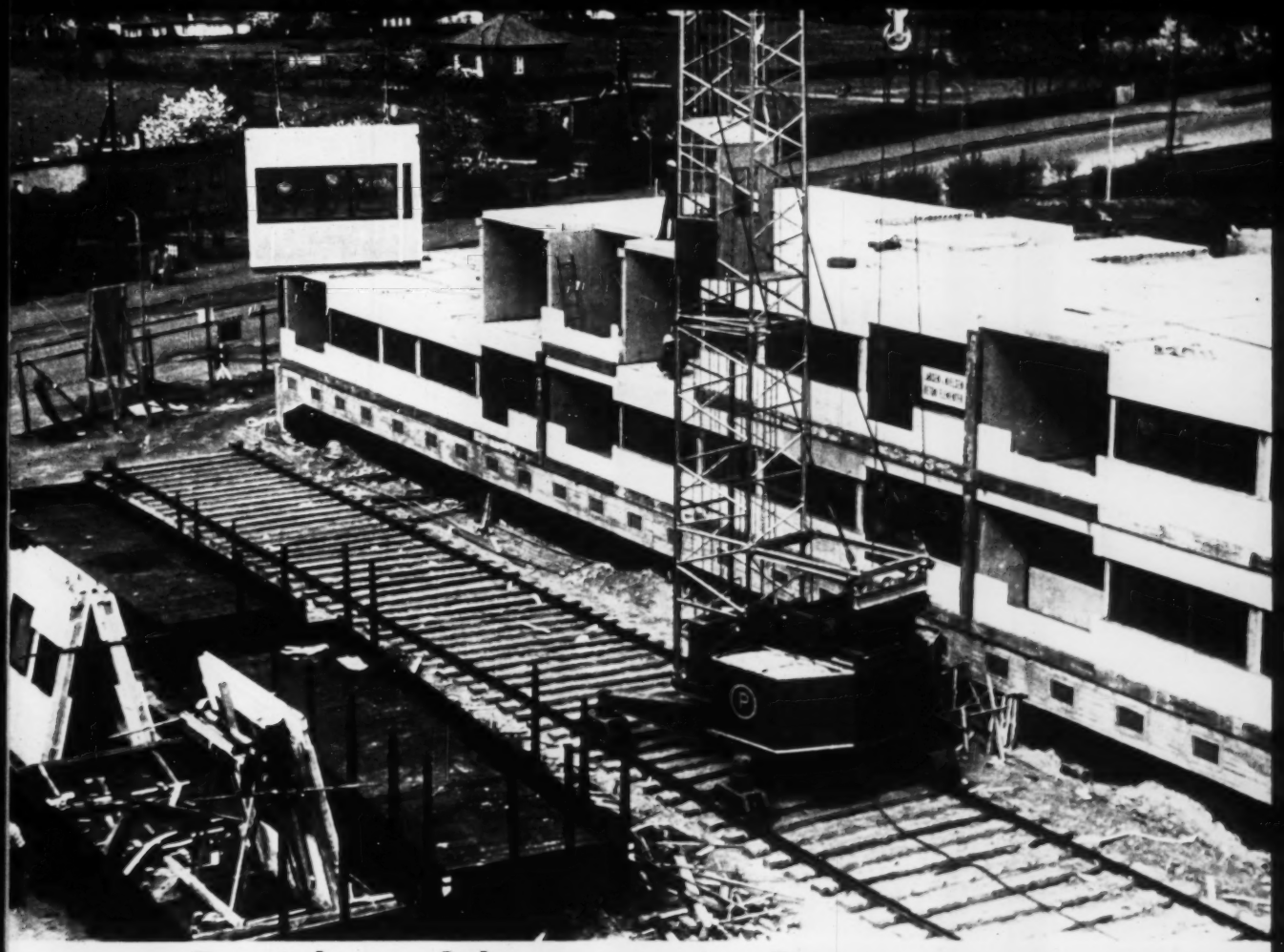

Danish prefabs go up in Germany p.34

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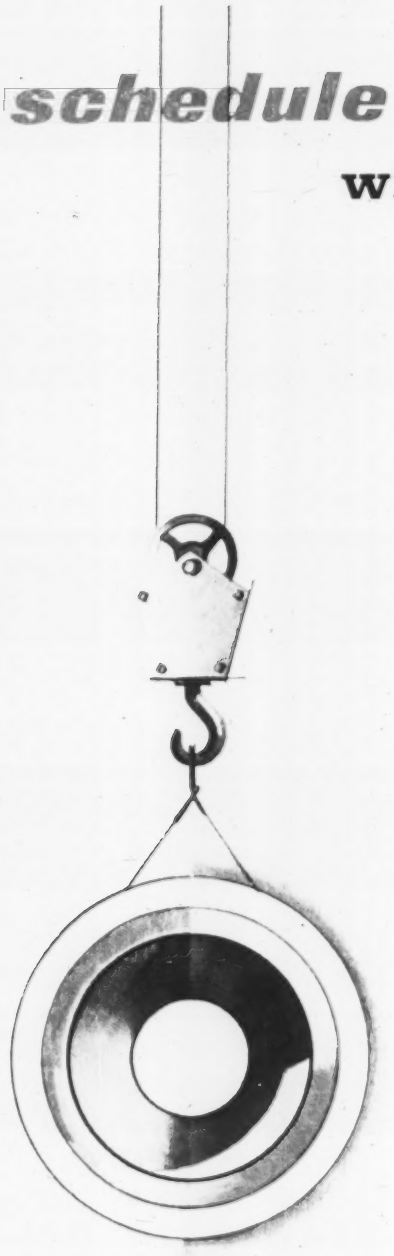
with Vulcan concrete pipe!



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Get *service* over and above your expectations. 100% reliable, on-schedule delivery from the nearest of *eight* strategically located Vulcan plants that blanket the South. Plants that house pipe inventories big enough for any need . . . anytime . . . anywhere.

Choose diameters from 6 to 144 inches; lengths from 4 to 16 feet. Or any other specifications you name.

Get the savings that result from this kind of service.

Call your nearest office of Vulcan Materials Company for full information and technical assistance. It's listed in your telephone directory.

Vulcan Materials Company also produces aggregates, surfacing materials, ready-mixed concrete, prestressed concrete members, concrete blocks, chemicals and metallics.

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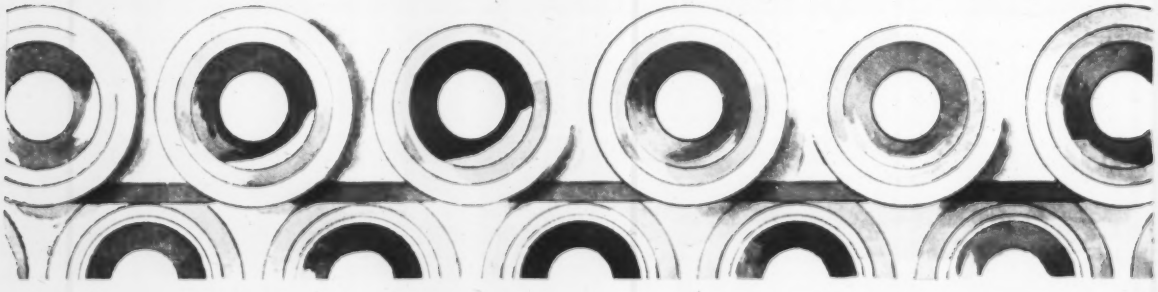

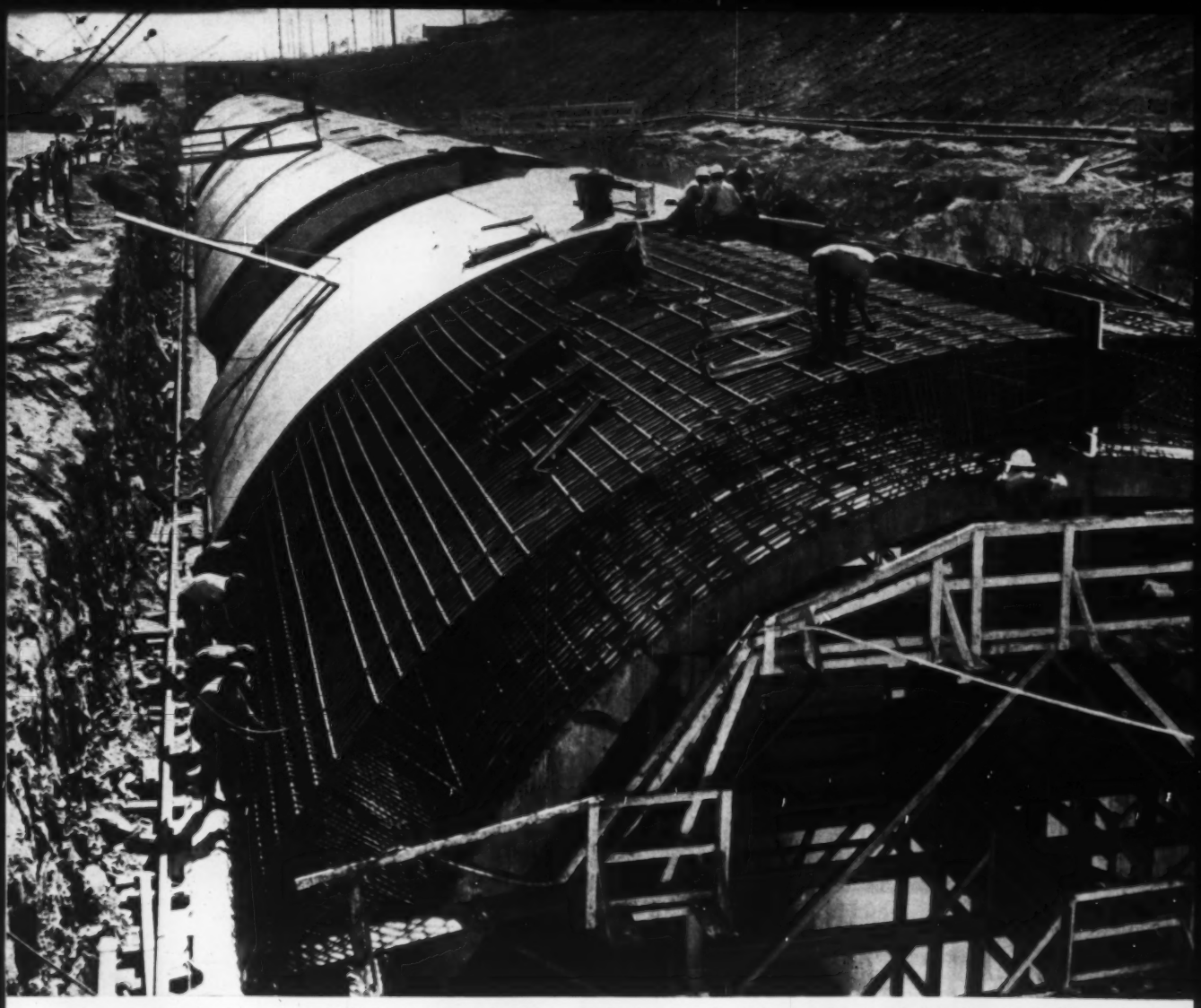

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Bar fabricating is our specialty, whether you need a hundred tons or ten thousand. For accurate fabrication, well-executed placing plans, and prompt delivery to your job site, order Bethlehem billet-steel reinforcing bars.

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Pneumatic-tired SB-60 in travel position. Screed, feeder and idler crawlers under hopper hydraulically raise for travel.

Pneumatic-tired SB-60 (shown). Model SA-60 has crawlers 3 ft. high.

TWO NEW

heavy-duty...high-capacity...high-speed FINISHERS

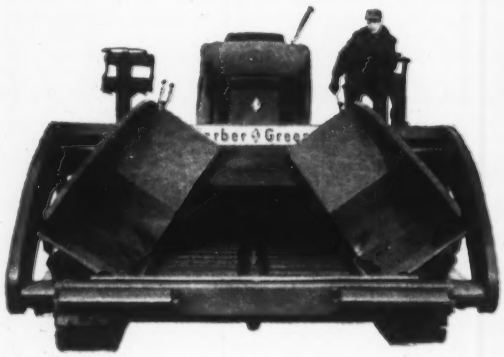
CRAWLERS or PNEUMATICS

Model SA-60 Model SB-60

Designed throughout for heavy-duty, high-capacity, low-maintenance operation, these two new Barber-Greenes offer the ultimate in high-tonnage production. They reduce nonproductive time, lay more miles per day at less cost per ton.

New design concepts give unequaled speed and maneuverability... 100% power steering (no clutches—no steering axle)... faster truck contact, discharge and release . . . feeder and screw speeds independent of travel speed . . . new automatic feed control . . . articulated, stabilized suspension . . . new unitized-construction . . . improved automatic leveling . . . hydraulically operated, high-speed tamper.

FOUR DIFFERENT FINISHERS. Only Barber-Greene offers a line of four finishers: the new 873, which paves on crawlers and travels on rubber; the new heavy-duty SA-60 and SB-60, shown above; and the famous 879-B unmatched for all types and sizes of jobs.



Self-cleaning, hydraulically operated hopper extends to extreme rear of chassis where gates are located.

These are just the high spots. Ask for complete information.

59-1-F

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS...LOADERS...DITCHERS...ASPHALT PAVING EQUIPMENT

How Good Is Russian Construction?

SIR—Concerning Dr. Feld's article (ENR Sept 24, p. 32), probably all visitors to the Soviet Union will agree that it presents a picture of tremendous contrasts. Both good and bad can be found in all categories including engineering. Any attempt to give a correct impression in a few brief statements or pictures cannot help but be incomplete and probably misleading.

I spent the month of August in the Soviet Union examining their precast concrete housing construction. The Russians are building large blocks of housing made with "room size" precast concrete panels. These panels are manufactured by belt-line methods in the factory and are delivered to the site completely finished for floors, ceilings, exterior or interior walls including door and window frames and glazing, and all piping and wiring. I have watched the assembly of several five-story buildings containing 60 apartments which they claim can be completed in five weeks.

Their seven-year plan contemplates building 25,000,000 apartment units throughout the Soviet Union and the speed and volume of what I saw in Moscow and Leningrad makes this figure believable. The most recent development prefabricates in the factory an entire one room apartment, loads it on a trailer and stacks these "boxes" at the site to make the finished building.

Actual field construction with this method was awaiting a supply of heavy cranes, which they expected in several months.

This housing has been described as ugly, box-like, dreary and crude, and undoubtedly deserves these descriptions. However, I think it is justifiable and intriguing to draw an analogy with the rapid increase in quality of automobiles, both technical and aesthetic, since Henry Ford's original belt-line.

DAVID BLOOM
Consulting Engineer
Philadelphia, Pa.

▶ I find Mr. Jacob Feld's graphic impressions of Russian building construction in substantial agreement with my own. I have just returned from three months around Europe, including six weeks in the USSR. However, I would add a few random comments.

I was impressed by a large precasting plant with advanced mechanized operation, including precision coring of hollow slabs, vibration, some prestressing and twenty-four hour steam curing, all served by a smooth, fast transfer system

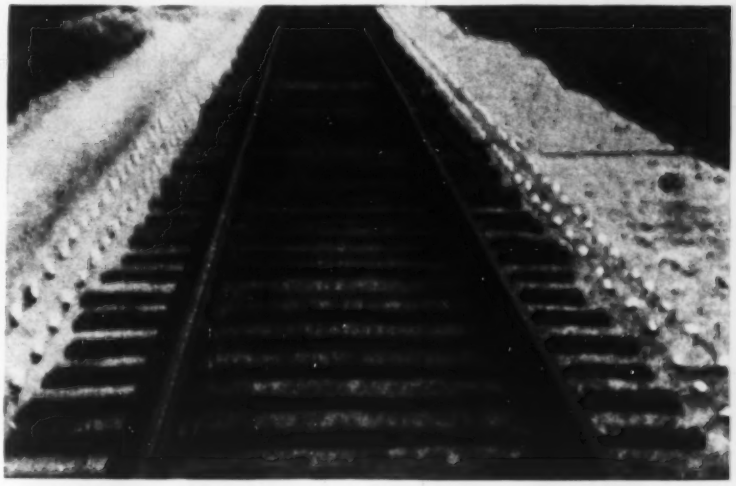
Prefabrication may be well adapted to semiskilled field labor; and, as they claimed, to cold weather building.

In general, the rough construction is finally covered with excellent plaster and stucco.

The finished buildings I judge will stand a long time with minimum maintenance. If they become "slums," it will be only because the Russians seem to go for four to eight story apartments, even way out in the suburbs.

It should be recorded, however, that the Russians are indefatigable growers of trees, shrubs and flowers. Note your cover photograph of same issue. The pleasant shade of courts and streets is a great amelioration.

HENRY WILCOX
South Norwalk Conn.



. . . Why the Stones?

▶—Our chief engineer, Mr. Albert Libutti, informs me that the stones pictured along the Russian railroad track serve a very definite purpose.

Other installations of this type that he has encountered were installed to break the stride of anyone trying to run along side of and hop aboard a passing train. It would seem that the same purpose was intended here.

HAROLD S. JENSEN
Sales Administration Manager,
Gilbane Building Co.,
Providence, R. I.

▶ . . . to prevent unauthorized persons from boarding trains leaving the city.

D. L. JERMAN
Chief Engineer
The Pittsburgh & West Virginia Railway Co.
Pittsburgh, Pa.

▶ Could the stones be a carry-over visual navigation aid for airplanes?

DEKKERS H. DAVIDSON
Timber Structures, Inc.
Ramsey, N. J.

▶ Perhaps to discourage train hopping—and dehopping?

A. J. HOLMBERG
Chicago, Ill.

▶ To indicate clearance. Inside row when the step is on the opposite side of the car, outside row when the step is on the near side.

LEE H. STRAIGHT
President
Straight Engineering Co.,
Adel, Iowa

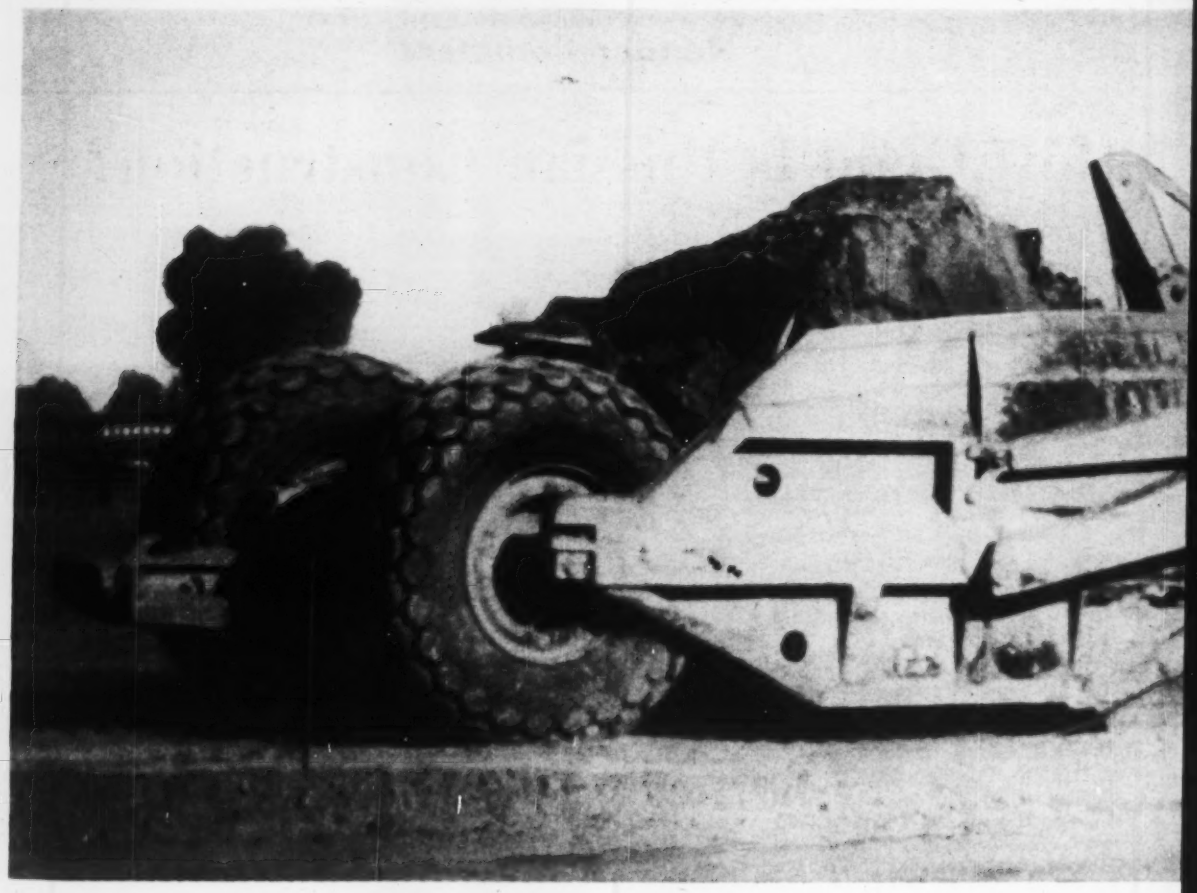
▶ Perhaps to show how recently the ballast has been tended.

ROBERT J. DILLON
Washington, D. C.

Editor's Note: Says an information officer with Soviet U. N. delegation, "Why, they're merely decorative."

(Reader Comment continued p. 14)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



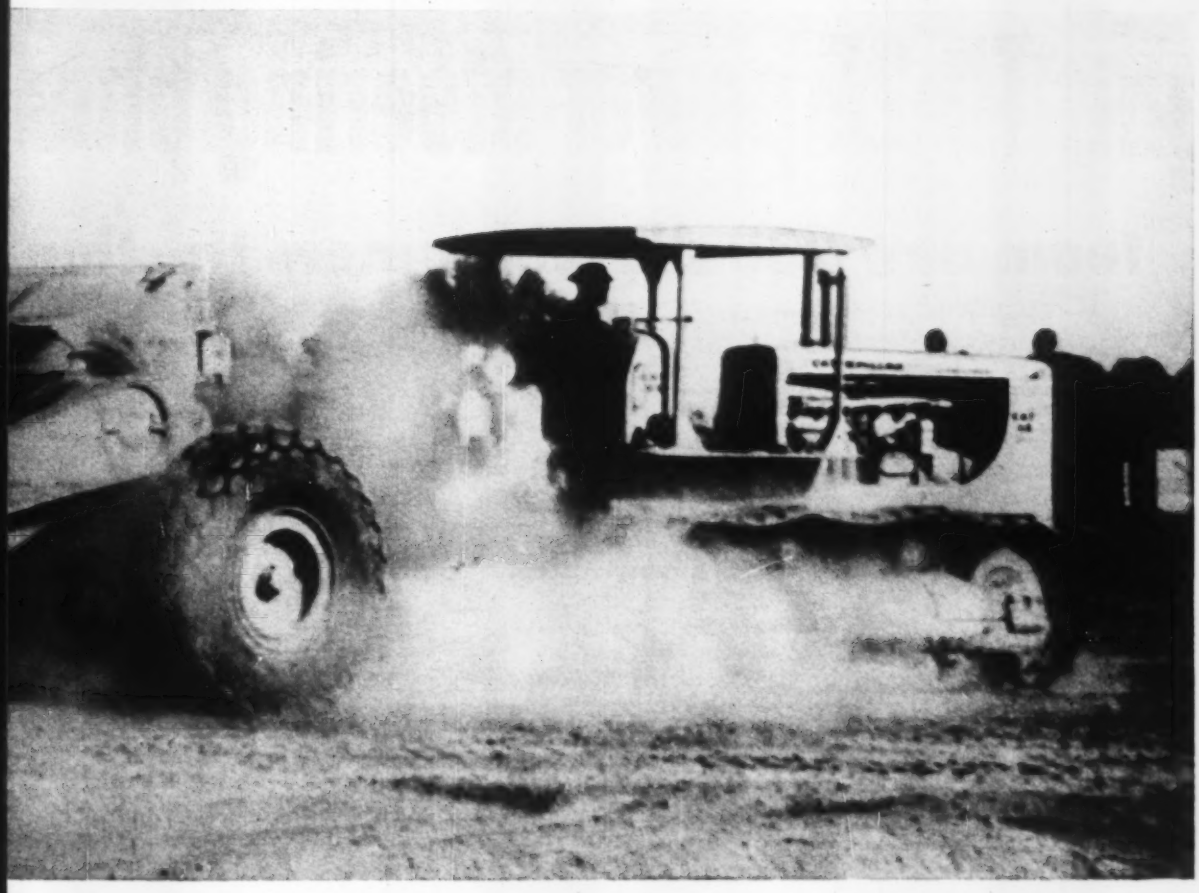
DESPITE 5,000 HOURS
"Texaco Simplified Lube Plan

says J. A. Fulkerson, land leveling contractor of Blythe, California

"This D-8 Caterpillar had run 5,700 hours when new rings were installed," Mr. Fulkerson continues. "When the engine was stripped at 11,130 hours in accordance with Texaco planned maintenance schedule, those rings were still amazingly clean, despite more than 5,000 hours' operation in a dustbowl.

"It's performance like this that has kept me a 100% Texaco customer for the past 15 years.

CLOSE INSPECTION by Mr. Fulkerson (right) and Texaco consignee G. E. Covington proves fine condition of rings and pistons of Caterpillar D-8 engine after 5,430 hours' service in conditions shown in top picture. Mr. Fulkerson has used Texaco 100% since 1944.



IN A DUSTBOWL
kept rings amazingly clean"

And the Texaco Simplified Lubrication Plan makes sure that all my equipment is getting the same kind of systematic servicing that kept this D-8 running so well."

Take a tip from Mr. Fulkerson. Try a Texaco Simplified Lube Plan on your next project. Every Texaco Plan is designed to handle all major lubricating requirements of a particular job with only six lubricants or less. Low inventory like that saves manhours in storage and handling, cuts paperwork in ordering, and minimizes the chance of misapplication of lubricants.

Ask a Texaco Lubrication Engineer to help you streamline your lubrication procedure with a Texaco Simplified Lubrication Plan. Just call the nearest of the more than 2,300 Texaco Distributing Plants, or write Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

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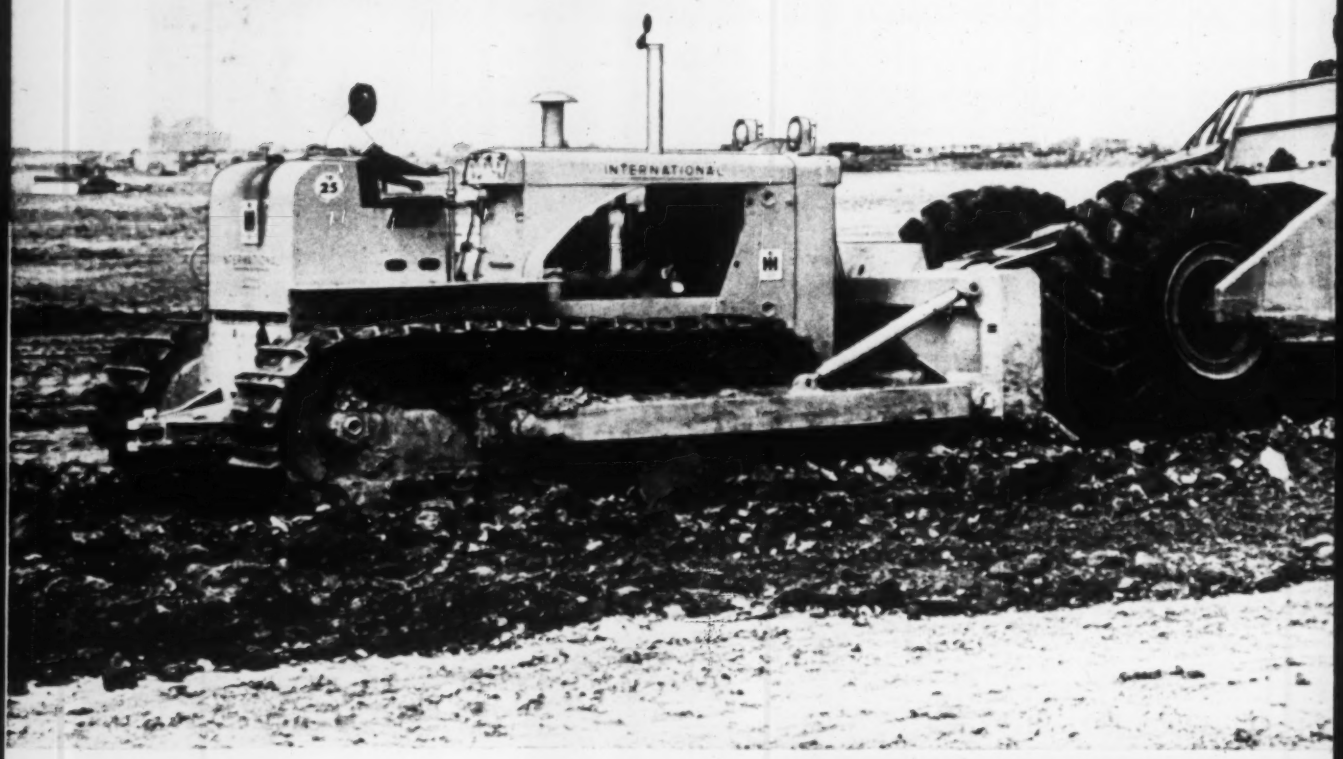
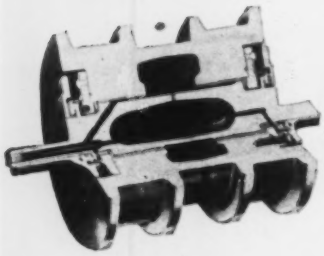
TD-25 power-steering plus

team new 230 diesel hp, new traction

You "gain ground" on all four steps of the push-loading cycle with the torque-converter TD-25. (1) you slow-down by power-shifting down and using decelerator to get feather-touch contact; (2) power-shift either track up or down to maintain solid pusher contact on curves; (3) get gear-higher kick-outs with on-the-go power-shifting; (4) reposition faster, with higher-than-ordinary reverse!





Dual-protected TD-25 Dura Rollers have precision-fitted, metal-to-metal cartridge-type sealing—to exclude abrasives and retain lubricant. These rollers have pressure relief passages so they can be power-lubricated—without affecting seal life or efficiency. Dura Rollers have king-size lube reservoirs, to make twice-a-year lubing practical!

on-the-go Hi-Lo power-shifting

..to outearn other rigs up to 50%!

You don't spill the "pay" part of your load with the TD-25—even when you change speed making the "pass." Hi-Lo on-the-go planetary shifting keeps the blade fully loaded—even when dozing round curves, benching, or side-casting! See how the "25" can help you pocket bigger profits.

You Power-Steer and Power-Shift the new International TD-25, with 2-finger ease! Exclusive, years-proved Planet Power steering gives you full-time "live-track" power and traction to make full-load turns and eliminate "dead-track drag." Hi-Lo on-the-go power shifting instantly matches power to conditions to prevent losing momentum!

Exclusive Efficiency-Range Control

Exclusive International Hi-Lo power shifting makes the TD-25 the industry's only 4-speed torque-converter crawler, and the only one with load-matching, efficiency-range control. In the synchro-mesh transmission TD-25, the Hi-Lo planetary system gives eight speeds forward and reverse—with cycle-speeding up-or-down, on-the-go shifting!

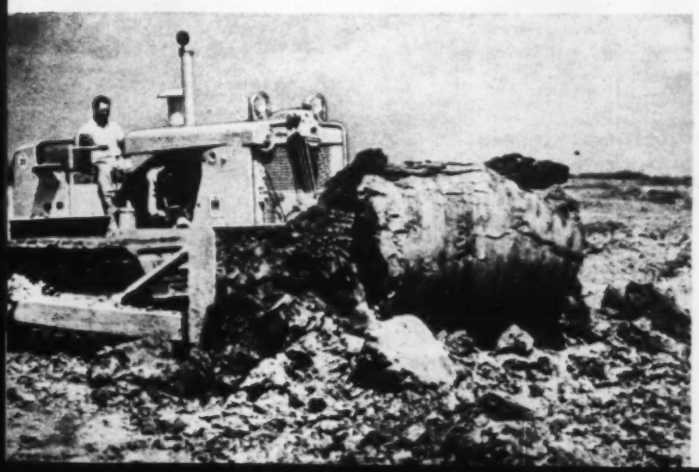
You get big-capacity teamwork of 230 diesel horsepower with the new 7-roller tracks, platformed on super-rugged, double-box-beam frames—and carried on International's new minimum-maintenance Dura Rollers! Over 39 square feet of ground-gripping traction area harness the "25's" great power!

You simply press the direct-start button, to command the "25's" free-breathing diesel horsepower. Dual valving of the "25's" high-torque DT-817 engine provides for peak turbocharging efficiency—to deliver full-rated power from sea level to timberline!

Full performance is at your fingertips, full time. No wonder the TD-25 outearns same-sized clutch-steered crawlers up to 50%—on a wide range of tough jobs!

SIZE UP TD-25 PLANETARY DRIVE DESIGN that breaks the load-limiting, time-losing steering and shifting bottlenecks—which plague king-sized, clutch-steered crawlers.

COMPARE NEW TD-25 FULL-LOAD, FULL-TIME ABILITY, to outearn other same-sized rigs—up to 50%! Let your International Construction Equipment Distributor demonstrate!



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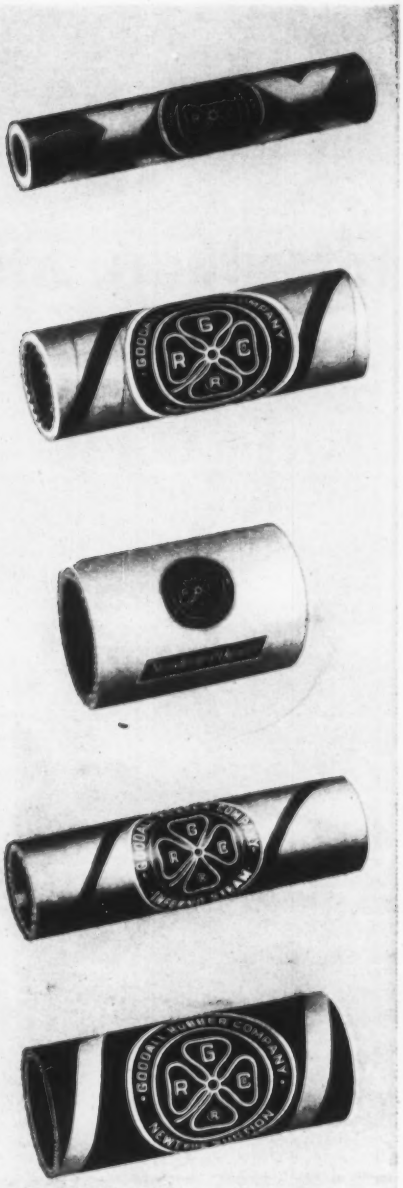

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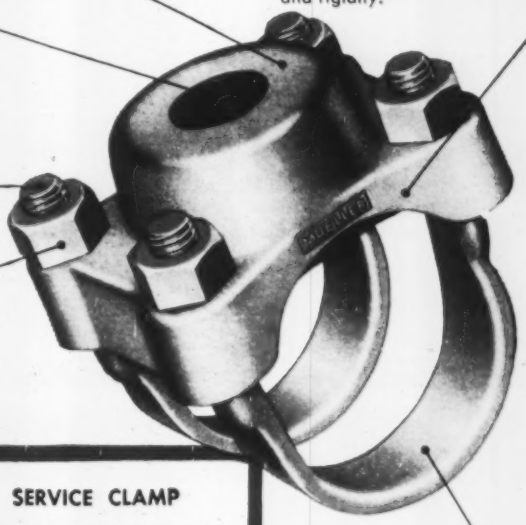
Unusually large cross sectional area provides maximum strength during installation. Even the smallest clamp has a ⅜" diameter strap because this is the smallest size bolt that cannot be broken by a normal individual in normal use.

Rolled steel, cadmium plated nuts accurately machined to give solid, permanent connection without re-tightening. National Standard threads give maximum strength by assuring precise fit.



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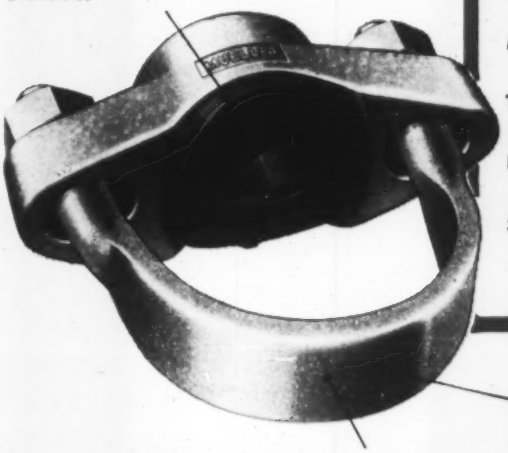

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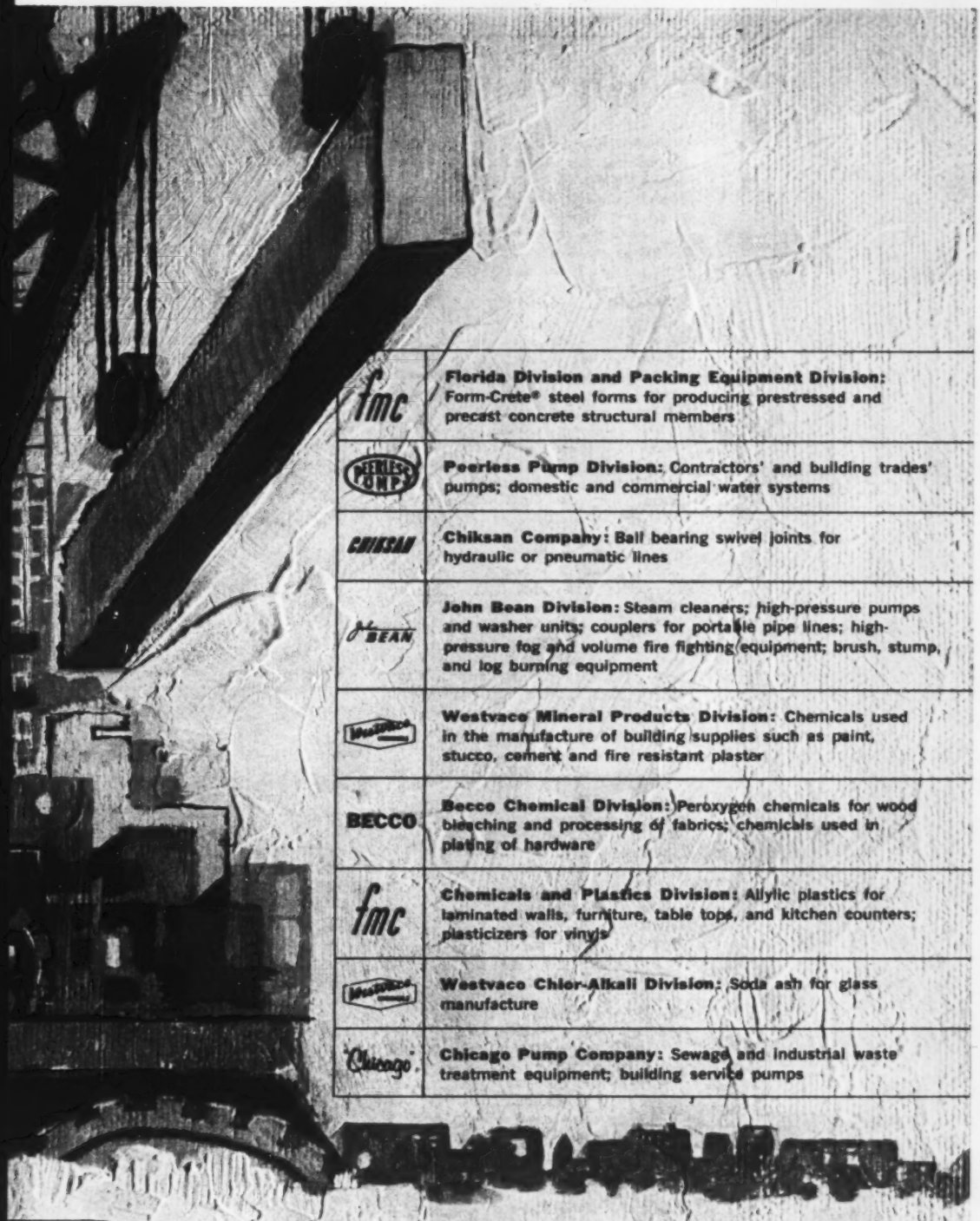
As a result of this practice, market by market and industry by industry, FMC today is looked to as a leading source for many products which may be broadly grouped into **Industrial and Agricultural Machinery, Basic Chemicals, and Military Defense Materiel.**

For complete listing of our products and services contact FMC, Dept. PRA, Box 760, San Jose, California



fmc	**Florida Division and Packing Equipment Division:** Form-Crete® steel forms for producing prestressed and precast concrete structural members
PEERLESS PUMPS	**Peerless Pump Division:** Contractors' and building trades' pumps; domestic and commercial water systems
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Westvaco	**Westvaco Chlor-Alkali Division:** Soda ash for glass manufacture
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Putting Ideas to Work

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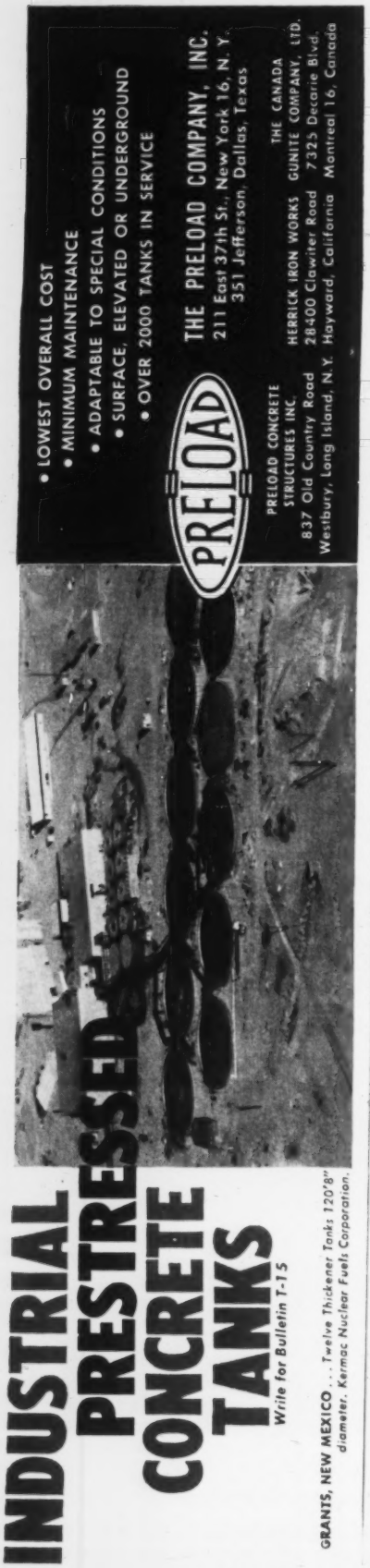
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Shelter Ideas Needed

SIR—I welcome the recently started discussion in your magazine on nuclear fallout shelters. It is time that we devoted some of our time to this important subject. The civil engineering profession should assume a positive attitude in this respect, and should contribute to the effort of solving the problems of the atomic age.

Fallout shelters are an important part of nuclear protection. It is almost impossible to imagine any effective defense system against nuclear warfare without some measure of immediate personal protection for all the country's citizens.

Even a militarily successful defensive action could not assure complete absence of radioactive fallout for all points of the defended area. And even in peacetime, an industrial atomic accident might cover large areas with unexpected quantities of radioactive matter.

From recently published results of fallout studies it appears that in case of nuclear attack, the chances of survival for the civilian population depend on four factors: accessibility of shelters, degree of protection offered by the shelters, self-sufficiency of the shelters, and availability of outside help. The outside help should come from the Civil Defense forces as soon as they are able to enter the contaminated area. But the shelters will have to be built in advance, and engineers will have to design them.

The degrees of protection for which shelters should be designed, their location, their cost and other technical and economical aspects of this complex program are open for discussion. Indeed, they need to be discussed by all concerned. Let us have such discussions soon.

BELA KOMAN, *P. E.*
Woodlawn Heights, N. Y.

▶—It is sincerely hoped that your sources of technical information are in general more reliable than that on protection from nuclear fallout. The art of absorption of penetrating radiation is one of the few completely coupled to the science. Both are well established and well understood, certainly far better than necessary to save the population.

Cost is quite a different matter—no one knows how to build a satisfactory subterranean cavity with minimum equipment that can compete in price and popularity with a portable radio. The demand simply isn't there at the current price.

EARL J. BECK, JR.
Oxnard, Calif.

More Attention to Maintenance

SIR—Of engineering work, probably the least interesting, least remunerative and least recognized by management and the public, and most necessary, is adequate inspection and maintenance.

Some fifty years of practice have taught me that operation stoppages and structural collapses are too largely due to lack of well directed inspection and correction of developing defects.

This brief is incited by the many articles you publish, bearing on the growing use of prestressed concrete and the use of exposed wire cable as supports for permanent aeronautic canopies and bridges. What care is to be given these rods and wires to insure minimum deterioration?

With the miles of roads and bridges subject to frost, moisture, yielding support, overloads, defective concrete and supervised by state and county engineers, too frequently with only political qualifications, and with irate taxpayers calling for reduced taxes, what is going to insure proper maintenance?

Who is going to insure wrapping, painting and scraping of umbrella cables on airport covers and suspension bridge parts? If the structure is large enough, Mackinac Bridge for instance, there will be a maintenance division with no other duties. For the miles of roads and minor bridges supervised by men with multivarious duties, when taxes get too high and receipts from tolls fall, the first thing to be slashed will be maintenance.

The present lowly status of inspection and maintenance should be greatly elevated. This must take place early in the career of a young engineer. Our youth is being educated not to maintain and repair that which is good, but "to throw it away and get a new one." Car manufacturers and dealers are prime advocates of this. Another is our arms program with the carelessness of defense spending and rejection which is doing much to insure carelessness in maintaining what we have.

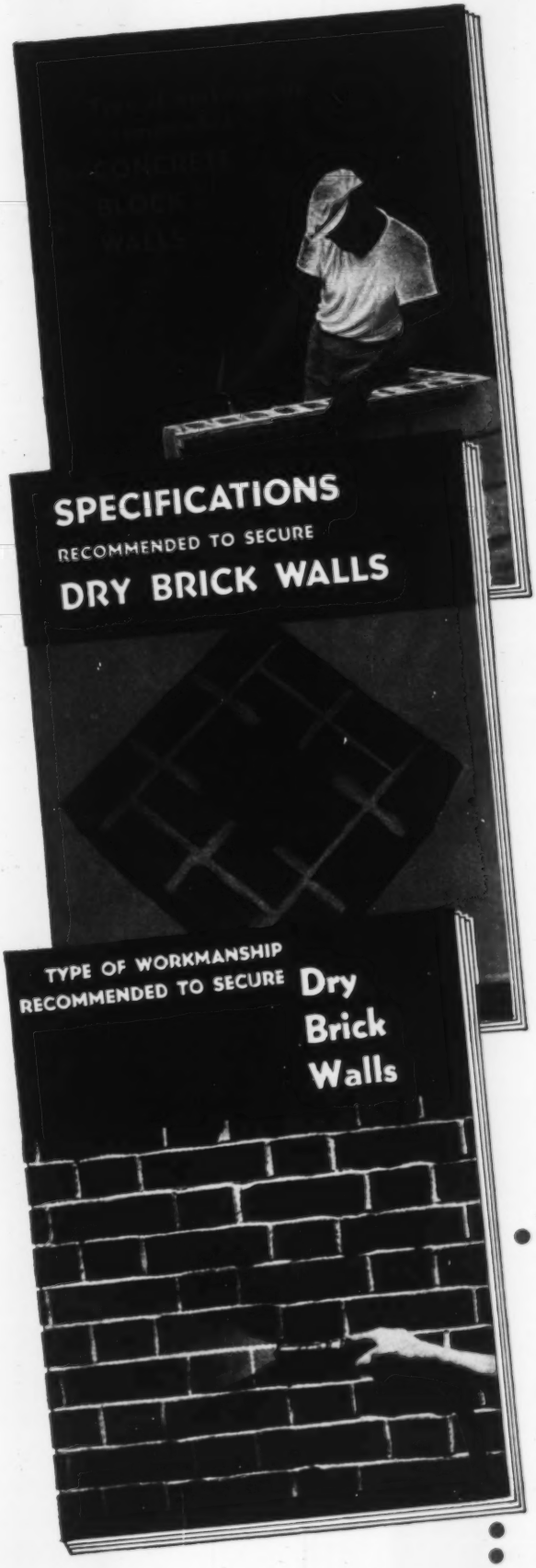
Prestressing no doubt introduces much initial economy, but with it should go an enforcable program of inspection and maintenance.

GEORGE R. WADLEIGH
Hastings-on-Hudson, N. Y.

For Your Calendar . . .

American Institute of Steel Construction, annual meeting, Boca Raton Club, Boca Raton, Fla., Nov. 30-Dec. 3. Write: L. A. Post, AISC, 101 Park Ave., New York 17, N. Y.

Paper and Paperboard Industrial Waste Conference, Edgewater Beach Hotel, Chicago, Ill., Dec. 1-2. Write: Russell L. Winget, Executive Secretary, National Council for Stream Improvement, Inc., 271 Madison Ave., New York 16, N. Y.



GET THESE IMPORTANT BOOKS!

THE three books at the left are a "must" for anyone who is interested in good masonry construction. One describes the type of *workmanship* recommended to secure dry brick walls. The second describes the *specifications* recommended to secure dry brick walls. The third describes the type of workmanship recommended for *good concrete-block walls.*

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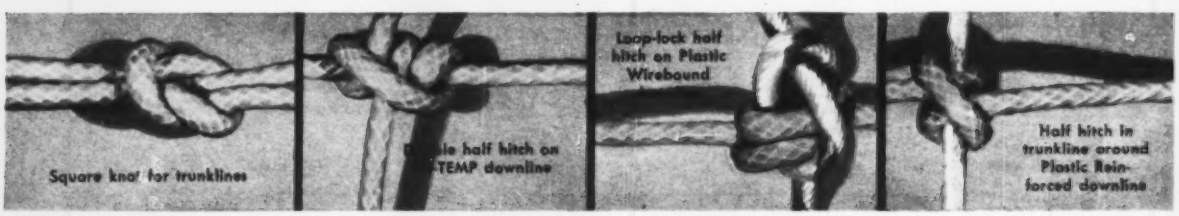
You can get tight knots and hook-ups even with stiff fingers when the weather's *cold!* Ensign-Bickford's new LO-TEMP Primacord is very flexible, easy to handle, and knots securely at *all* temperatures – even down to *minus* 40°F.!

LO-TEMP can be used for in-hole priming wherever conditions do *not* call for our more rugged types of Primacord. Use it as the trunkline for *all* hook-ups. Detonate with fuse and cap or electric blasting cap, side-taped about eight inches in from the end of the trunkline, and with the business end of the cap pointing in the direction of the blast.

Like all types of Primacord, LO-TEMP is very insensitive to initiation by shock, friction, sparks or electricity. When initiated with a blasting cap, it explodes at a velocity of 21,000 feet per second and has the initiating energy of a blasting cap along its entire length.


Square knot for trunklines
Loop-lock half hitch on Plastic Wirebound
Half hitch in trunkline around Plastic Reinforced downline

For connecting trunklines and downlines

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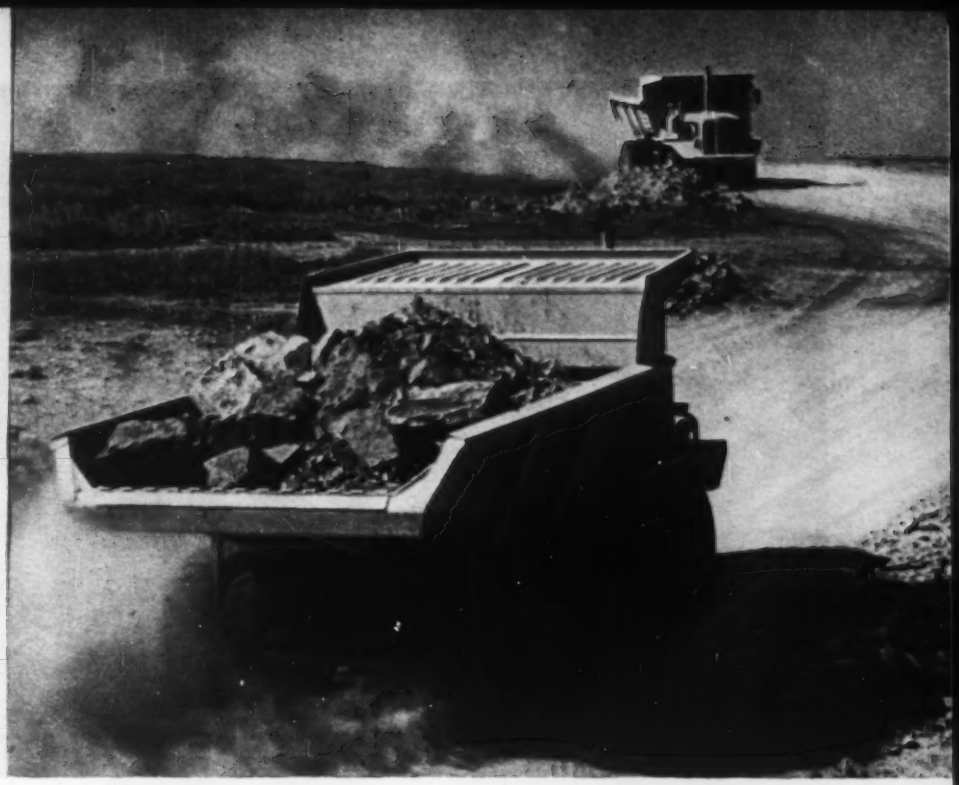
Simsbury, Connecticut – Since 1836

L-2

Walker Cut Stone Co., Milford, Kansas, replaced six smaller overworked gasoline haulers with only two 19-ton Model 65 Payhauler trucks! Their "65's" deliver 150 tons of limestone per hour, from quarry to crusher.



How new rock-ribbed 65 Payhauler® pair speeds "write-off," replacing six smaller rigs!

—for Walker Cut Stone Co., Milford, Kansas

Two new International 19-ton 65 Payhauler trucks —with the new weight-saving corrugated bodies, and the new 250-hp D-817 diesel engine—have replaced six smaller gasoline trucks for Walker Cut Stone Co., Milford, Kansas.

Results are amazing! Only two operators instead of six to pay! Only 40 gallons of low-cost diesel fuel used daily (total) by the two Payhauler rigs—against several times 40 gallons of high-priced gasoline formerly swilled by the carbureted outfits! And only two machines to maintain, instead of six! "Write-off" of the Payhauler investment speeds in "high gear!"

Payhauler features increase capacity!

Even against competitive haulers of similar rated capacity, the new 65 Payhauler gives you overwhelming advantages!

Of all off-road haulers in its size class, only the 65 Payhauler has the International-developed rock-ribbed corrugated body! This strength-multiplying principle lets the "65" shed 5,000 lbs. of power-wasting weight, and gain a full ton of payload capacity.

Prove the power-to-payload advantages the new rock-ribbed 65 Payhauler delivers! Compare the "65's" cycle-speeding combination of air-assist shifting; 11-second dumping, fast reversing; super-power braking; bonus-leverage, vibration-free power steering! And for 27-ton capacity, note how the 375-hp "95" leads the field. See your International Construction Equipment Distributor for a demonstration!

In only 11 seconds you dump the "65's" 19-ton load —with 3-stage, double-acting, constant-power hoist! Positive up-and-down snubbing guards against impact!

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

PAVING SWITCH—California and North Carolina have joined the small group of states permitting use of slip-form concrete pavers on state highway projects. Slip-form pavements have demonstrated good riding qualities, and contractors report they're easier and cheaper to construct than those built with conventional equipment.

SHARPER COMPETITION—Foreign equipment firms are meeting keener competition from domestic companies. Three low bids on Glen Canyon's eight 112,500-kw turbines last week came in with only a 6% spread. English Electric Export & Trading Co. was apparent low bidder at $6,214,552. Baldwin-Lima-Hamilton Corp. and Nichimen Co. were second and third on an "unevaluated" basis. Nichimen was highest at $6,584,560.

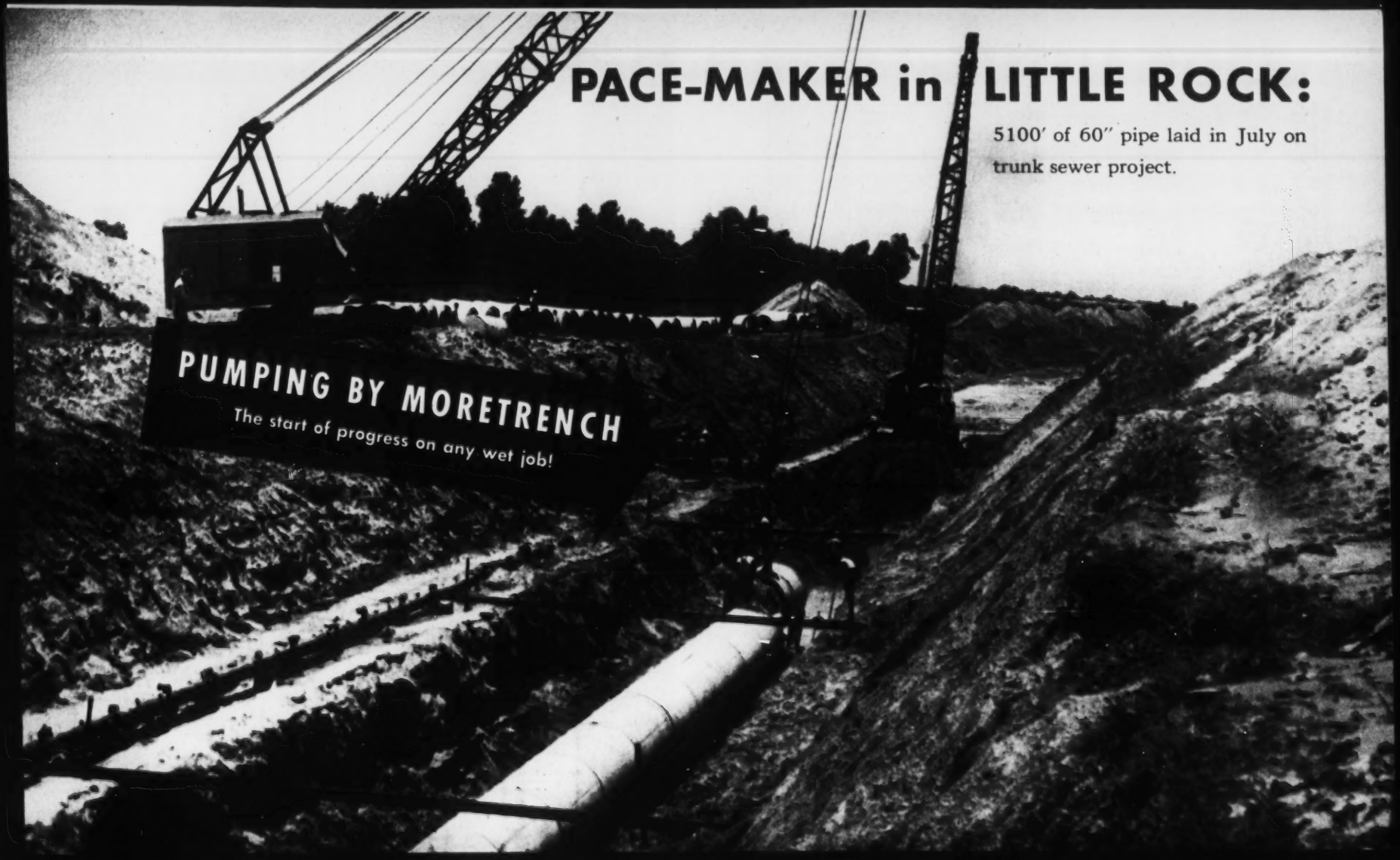
SHOCK TREATMENT—Baltimore's rundown central business district is scheduled for $127 million worth of renewal, beginning late next year. The project will include eight office buildings, a theater, hotel and underground parking. It's described by city planners as "shock treatment" to prevent further deterioration.

MORE PICCADILLY, LESS CIRCUS?—A "ribald monstrosity" and "Piccadilly atrocity" are what critics in the press and Parliament call plans for a 13-story skyscraper proposed for Piccadilly Circus in London. The building would be faced with a huge panel to hold neon advertisements and topped with a crane for changing the ads (ENR Mar. 19, p. 39). The critical uproar has halted the project pending a public inquiry.

HOW TO PAY IT—The Commerce Department is trying to get the Defense Department to agree that increased bridge clearance on Interstate Highways should be paid for out of general Treasury funds instead of the Highway Trust Fund. It will cost about $30 million a year (ENR Nov. 12, p. 25).

UNION LABEL FOR D.C. WORK?—Union contractors and labor representatives in Washington, D. C., are pushing two proposals to make it tougher for nonunion contractors to get work there. The proposals: Let major District jobs under a single contract; require contractors on D. C. jobs to pay prevailing fringe benefits as well as prevailing wages.

ALUMINUM VS. STEEL—New York Department of Public Works will build a 212-ft aluminum bridge in Amityville, L. I., in hopes of finding a way to cut highway construction costs. It will resemble the cellular aluminum test bridge built by Fairchild Engine & Airplane Corp. (ENR Sept. 4, 1958, p. 25). DPW thinks aluminum bridges can be cheaper than steel and, if widely used, drive down the cost of steel spans.


PACE-MAKER in LITTLE ROCK:
5100′ of 60″ pipe laid in July on trunk sewer project.
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WASHINGTON OBSERVER

- U. S., Russia to exchange construction men
- Government probes discrimination in hiring

● **A big U. S.-Soviet exchange of construction experts is in the works** following the signing last week of a new agreement with the Russians.

Visiting teams of delegates in two fields will be swapped by the end of 1961, according to the arrangements made for the U. S. by State Department officials under the cultural exchange program.

The Soviets are most interested in U. S. highway construction because of the ambitious roadbuilding program in the new Khrushchev seven-year plan. The Soviet team is expected to concentrate on the engineering aspects of roadbuilding, on administration, and on traffic research.

Both government officials and representatives of private contractors are expected to be members of the U. S. delegation, although the final decision has not yet been made.

Experts on mechanization of construction of all kinds are involved in the second exchange with the Russians. The main focus, of course, will be on the use of machinery and equipment. The details of this exchange are still fuzzy. Composition of delegations, where they'll go and what they'll see are still to be worked out.

No dates have been set for either of these exchange trips but terms of the agreement signed require that they take place before the end of 1961.

The highway experts aren't the first to go to Russia in the construction field. Just recently teams of electric power experts have been exchanged; back in 1955-56, the National Association of Home Builders engineered an exchange of delegations in housing construction.

—

● **Discrimination in hiring for construction on government work is being investigated by the government.** The number one case under scrutiny is rebuilding of the east front of the U. S. Capitol. The President's Committee on Government Contracts, headed by Vice President Nixon, is at work on the case.

The charge: A local rodman's union refuses to refer any Negro workers for the east front project. The Nixon committee got the complaint from a Negro reinforcing steel setter who said he could not get clearance from the Washington, D. C., local. The union says it does not discriminate, but to date, Nixon's staff says, no Negro has been made available to the contractor, McClosky & Co., Philadelphia.

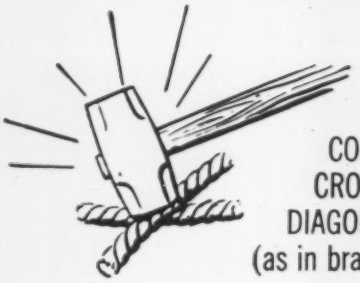
McClosky offered to bring Negro workers in from a Philadelphia local, but Mr. Nixon demurred. The committee wants to persuade the Washington local to comply with the clause in government contracts prohibiting discrimination.

The committee has enforcement power, but in other areas has preferred to use persuasion. It could deny a contract at the outset if it was convinced that a contractor, though agreeing to sign a non-discrimination clause, was unable to fulfill because of union practices.

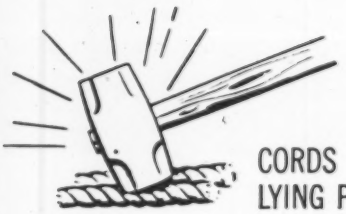
Construction is getting major attention from the Nixon committee, which has worked to reduce discrimination in telephone, transit, refining and other industries. The Nixon group's view is that the building industry provides a big opportunity for Negro workers in the years ahead. What happens in the east front project may well set a pattern for other construction contracts.

ROYAL CORD AIR HOSE

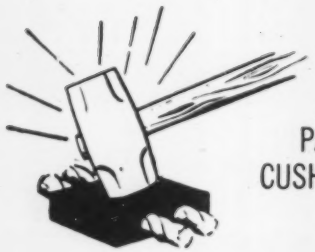
WHICH HOSE CONSTRUCTION CAN TAKE THE BEATING?



CORDS CROSSED DIAGONALLY? (as in braided hose)



CORDS LYING PARALLEL?



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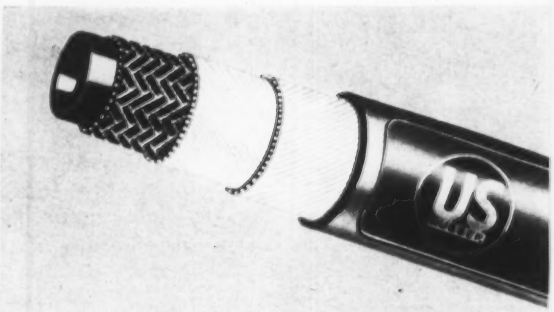
as in U. S. Royal Cord Air Hose?

Yes, the exclusive "U. S." development—parallel cords cushioned in rubber can take and *do* take the *most* pounding. Observe how the cords run parallel in each of the two pressure-resisting plies; there is no crossing as in conventional braided hose. Each ply is separated by a layer of rubber—each cord is cushioned in rubber. This means there can be no friction created between cords, and therefore no chance of any shearing within the carcass.*

A hose with spiral plies is *always* stronger, because more strands can be used throughout the entire hose length than can be used in other constructions. *U. S. Royal Cord Air Hose has the same construction as that of a tire.* This is the exclusive quality you find under its cover.

The exclusive and outstanding features you get in U. S. Royal Cord Air Hose constitute one of the main reasons why



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The Rebar Case . . .

Contractors Disagree With U.S.

- **The government charges western contractors can't buy rebars direct from the mills, are forced to deal with fabricators.**
- **But contractors there report they can and do buy from the mills—and often prefer to hire fabricators to install rebars.**

Has an understanding between fabricators and steel companies prevented general contractors in seven western states from buying reinforcing bars direct from the steel mills? Has it prevented contractors from installing rebars themselves and forced them to deal with fabricators?

The Justice Department says such an understanding exists. That's the most important allegation in the government's antitrust suit against seven fabricators, two major and four small steel producers, and a fabricator's trade association (ENR Nov. 26, p. 26).

But it's all news to western contractors surveyed by ENR.

West Coast contractors surveyed by ENR agree with the Justice Department that prevailing practice there is for fabricators to cut and bend rebars from mill stock and then install the rebars under subcontract. But there the agreement ends.

A San Francisco contactor says that competition between fabricators brings prices down to the point where it would be uneconomical for the general contractor to do the reinforcing work himself. "They keep cutting each others prices until the last minute," he observes. In Colorado and Washington, where fabricator competition is not as keen, he has found it economical—and possible—to do his own rebar work.

On big jobs contractors say they can and do purchase direct from the mills. Guy F. Atkinson Co. has purchased and is fabricating and placing all reinforcing steel at Ice Harbor Dam. Merritt-Chapman & Scott has also purchased rebars direct from the mills for Glen Canyon Dam, although it has subcontracted the placement to Judson-Pacific Murphy Corp., a fabricator not named in the antitrust suit.

And one contractor in the San Francisco area operates his own prestressed and precast concrete fabricating plant, handling all rebar work at the plant with his own forces. This same contractor hires a fabricator when he has to place rebars in the field.

Another contractor operating out of San Francisco reports he has the setup to handle fabrication. But he lets the fabricator do the cutting, bending and placing of rebars when the project is in an urban area and is relatively small.

"However, when we are working on more complicated, larger projects ($8 million and up), we find we can schedule our work more satisfactorily when we do our own fabrication and placing."

Fabricators report that most contractors prefer not to do their own cutting and bending. Apparent reason is that a fabricator can do the job less expensively—he's set up to carry large inventories of various sizes and can absorb all the tailings.

For example, a contractor working from 60-ft domestic stock steel bars is apt to end up with a pile of 8-ft and 10-ft lengths. He has no use for them and would have a hard time disposing of them. The fabricator can warehouse them for later use.

The sum of those views is at odds with the government's view that contractors *must* buy from fabricators—and may not bend and shape rebars themselves, may not buy direct from steel mills.

The second target of the suit is an alleged set of arrangements, which, the antitrusters charge, has limited or eliminated competition among the accused fabricators. These alleged arrangements include agreements to allocate or assign fabrication jobs and to refuse to submit competitive bids on a job that has already been assigned to one fabricator.

In short, the government charges that the fabricators—with the cooperation of the steel mills—have set up a system in which rebars are channeled from the mill through a fabricator. The method by which this is done, the antitrusters say, is rather involved. And they are not willing now to spell out the evidence they will submit in court.

According to the antitrusters, fabricators and general contractors working on large construction jobs actually are competitors in some cases. That's because fabricators, generally, perform one or both of two main functions: In their fabricating plants, they bend, shape or cut rebars to meet specifications for a particular construction job; but they are also engaged in the business of tying, placing and installing rebars.

In addition, the antitrusters say, large contractors not only are capable of doing their own installation, but are equipped to shape their own bars needed for a particular job.

In describing the reinforcing bar and rod products involved in the alleged conspiracy, the government suit refers to them as bars in heavy construction work, requiring sizes in excess of ⅝ in. in diameter and longer than 40 ft.

This relates to another part of the agreement, which, the government charges, has led to the "channelizing" of rebars from mills to fabricators.

It is the government's contention that the mills—by agreement with fabricators—limit their sales of rebars to warehouses and building supply dealers to small sizes and lengths. These sizes are, according to the government, unsuitable for heavy construction work.

Thus another part of the alleged agreement falls into place: General contractors are potential customers of the mills, of warehouses and building supply dealers, and of fabricators. But since mills refuse to sell direct to contractors and make only limited sales of smaller rebars to warehousing and building supply dealers—all as part of the alleged agreement—contractors can only obtain needed rebars from fabricators.

While the antitrust suit relates only to fabricator activity in seven states—Arizona, California, Idaho, Nevada, Oregon, Utah and Washington—its significance is nation-wide.

(Turn the page)

The Justice Department's request that all the alleged understandings between fabricators and between fabricators and mills be declared illegal and enjoined could be extended to the same companies wherever they operate or sell rebars. And a request that mills be prohibited from refusing to sell or discriminating in selling rebars to any general contractor or warehousing and building supply dealer could also be applied to the mills wherever they operate.

The government spent about 15 months investigating the rebar situation in the western states before the new case was filed. If the antitrusters win their case there, the court could apply the relief to other areas without requiring the government to conduct similar investigations.

Elsewhere in the country fabricator cutting, bending and placing of rebars is not the accepted practice it is in the West. But the contractors in other parts of the country do report that subcontracting with fabricators for placing of rebars and wire mesh is generally more economical than maintaining a staff to handle it.

Such is the case in Chicago, where contractors usually order rebars direct from the mill, which also bends them to shape, and then subcontract the setting work to a fabricator or a company specializing in bar-setting. Occasionally contractors say the job is handled by temporary hired labor working under the general contractor's own foremen.

Whether this system results in more competition (as the antitrusters believe) is debateable. A Chicago contractor says bidding by steel companies and warehouses on a contract for rebars is mostly for show, because the contractor usually knows who he will give the contract to. It's good business, he says, to give most of your contracts to the same rebar source. Often charges for shaping are dropped, or the price of rebars is discounted up to 30%.

Other Chicago contractors deny that post-bid price setting exists—except perhaps during highly competitive periods—even if contractors usually do buy from the same source.

A check of New York City contractors shows that some companies buy direct from mills, others from distributors—depending on how the job is to be handled. Most New York City jobs are subbed to concrete specialists simply because good ones are available.

But no matter how a job is handled, steel mills have good reason for being particular about their customers, says a New York contractor. Here are his reasons why:

Setting the bars and placing the concrete is a hazardous job and the capabilities of all involved are of top importance to the steel producers. If there's a collapse, the mills will have to answer to investigators.

A steel company representative also notes that it is far easier to service a small number of fabricators than hundreds of contractors.

Big U.S. Mortgage Lending Coming?

Whether or not individual builders are as worried privately as they are publicly, the face they show to Congress and the public is grim. Result: Increasing talk in Congress of reviving big-scale federal props in the mortgage market.

That prospect has been raised in recent weeks by both chairmen of the Congressional housing subcommittees—Sen. John J. Sparkman and Rep. Albert Rains, both Alabama Democrats.

What they have in mind is another special support program in which the Federal National Mortgage Association (Fannie Mae) would buy FHA-insured and VA-guaranteed mortgages in the secondary market. Indications are homebuilders would welcome it.

This week's meeting in Washington of the National Association of Home Builders "emergency policy committee" was primed in advance to ask for such special support in 1960.

The mortgage prop idea is not new. In the Emergency Housing Act of 1958, Congress resorted to such a program to lift housing out of trouble. It created a $1-billion loan fund for Fannie Mae's purchase of government-backed home mortgages. Mortgages of $13,500 or less were eligible.

In the industry's view, it worked well. Housing spokesmen credit the program with being a major factor in the strong recovery that marked the latter part of 1958, and that sent housing into 1959 with a lusty boom in swing. This year will close out with a near-record 1.3 million new starts, owing to the fast start in the early months.

New starts have been declining at a steady rate since the high of 137,400 in April. In October new private starts were only 102,000.

Carl Mitnick, president of the NAHB, says "tight money conditions throughout the country have almost eliminated an effective flow of mortgage funds." In setting up the emergency policy group that met this week, Mr. Mitnick professed to be unable to see any reason for optimism about 1960.

His pessimism is not mirrored inside the Administration, however. Top government housing officials told ENR this week they expect 1960 will product 1.1 million to 1.2 million new starts—a good year, if not as good as 1959.

They expect mortgage money to ease in the spring—a situation that would put the industry through a cycle quite contrary to this year's. This would mean a strong finish in 1960, after a weak start.

This forecast is based on several factors. The Treasury Department will be less of a competitive factor in the money market. Its big borrowing is finished for awhile. There is a feeling, too, that savings and loan institutions will step up their forward commitments to builders. And while you can expect competition from industry, which will need heavy funds for inventory accumulation and new plant and equipment, there is a feeling also that it may not be quite as heavy as it might be. The belief is that industry will obtain its expansion funds from internal sources—retained earnings, depreciation and depletion allowances.

Given this set of circumstances, the Administration will oppose any effort to put Fannie Mae back into the mortgage market as the principal prop.

If the forecast turns sour, the Administration will be forced to take some measures by spring.

This is hardly satisfying to NAHB officials. They want action in a hurry.

For the short term, NAHB people acknowledge, there seems to be little in the way of an alternative to Fannie Mae and special support. And one of them says, "we're going to need it next year worse than we did last year."

But the emergency policy committee was not summoned to Washington merely for consideration of the near future. On its agenda also were two long-range plans:

- **Creation of a Department of Housing, a body with Cabinet rank.** This would give the housing industry much more influence and considerably more voice in the inner councils of government.
- **Creation of a Central Mortgage Bank.** Builders have wanted this for some time. As they envision it, such a bank would keep a regulated but steady flow of money available in the mortgage market. Ideally, it should be capitalized with private funds—from builders, investors, and others in the $125-billion home mortgage business. Practically, such a bank could hardly get going without some federal capitalization as well.

This week's meeting marks the beginning of a determined drive to win Congressional approval of both.

Outlook: Construction Spending Up 2%

Here's the Outlook by Categories

(For construction put in place, excluding Alaska and Hawaii)

Type of Construction	Value (in millions) 1958[1]	1959[2]	1960[3]	Percent Change 1958-59	1959-60
TOTAL NEW CONSTRUCTION	**$48,903**	**$54,000**	**$55,300**	**+10%**	**+2%**
PRIVATE	**33,491**	**37,800**	**38,800**	**+13**	**+ 3**
Residential (nonfarm)	18,047	22,150	21,500	+23	− 3
New Units	13,552	17,000	16,000	+25	− 6
Additions and Alterations	3,862	4,400	4,600	+14	+ 5
Nonhousekeeping	633	750	900	+18	+20
Nonresidential (nonfarm)	8,675	8,600	10,200	− 1	+19
Industrial	2,382	1,950	2,450	−18	+26
Commercial	3,589	3,850	4,450	+ 7	+16
Office Bldgs. & Warehouses	2,013	1,925	2,225	− 4	+16
Stores, Cafes & Garages	1,576	1,925	2,225	+22	+16
Other nonresidential	2,704	2,800	3,300	+ 4	+18
Religious	863	925	1,050	+ 7	+14
Educational	574	530	600	− 8	+13
Hospital and Institutional	600	570	700	− 5	+23
Social and Recreational	424	540	700	+27	+30
Miscellaneous	243	235	250	− 3	+ 6
Farm	1,475	1,750	1,550	+19	−11
Public Utilities	5,105	5,100	5,350	[4]	+ 5
Railroad	276	275	250	[4]	− 9
Telephone and Telegraph	904	900	1,100	[4]	+22
Elec. Light and Power	2,250	2,075	2,050	− 8	− 1
Gas	1,500	1,700	1,825	+13	+ 7
Other Public Utilities	175	150	125	−14	−17
All Other Private	189	200	200	+ 6	0
PUBLIC CONSTRUCTION	**15,412**	**16,200**	**16,500**	**+ 5**	**+ 2**
Residential Bldgs	846	1,000	900	+18	−10
Nonresidential Bldgs	4,653	4,500	4,725	− 3	+ 5
Industrial	408	340	375	−17	+10
Educational	2,875	2,675	2,750	− 7	+ 3
Hosp. and Institutional	390	425	450	+ 9	+ 6
Administrative and Service	532	590	700	+11	+19
Other Nonresidential Bldgs.	448	470	450	+ 5	− 4
Military Facilities	1,402	1,490	1,375	+ 6	− 8
Highways	5,500	5,800	5,700	+ 5	− 2
Sewer and Water Systems	1,387	1,465	1,625	+ 6	+11
Sewer	836	900	1,000	+ 8	+11
Water	551	565	625	+ 3	+11
Public Service Enterprises	451	560	700	+24	+25
Conservation and Development	1,019	1,150	1,225	+13	+ 7
All Other Public	154	235	250	+53	+ 6

[1] *Bureau of the Census statistics.*
[2] *Estimates for last 2 months prepared by BDSA.*
[3] *Estimates prepared by BDSA.*
[4] *Change of less than ½ of 1 percent.*

A 2% increase in 1960 construction spending is forecast by the Commerce Department outlook released yesterday.

Big increases are foreseen in dollar outlays for privately financed construction of industrial and commercial buildings, hospital and institutional construction, social and recreational facilities, and telephone and telegraph systems.

Only large decline forecast for private construction is in housing. It's expected to drop 3%, or $650 million, from this year's estimated peak of $22.5 million. The 1959 estimate is $4.1 billion or 23% above 1958.

The projected housing decline is based on the current downtrend in new starts. The downtrend is expected to continue through the first half of next year. Based on an estimate of 1.2 million housing starts in 1960, builder spending on new dwelling units will decrease $1 billion, or 6% below the record $17 billion estimated for this year, according to projections by the department's Construction Industry Division. The revised estimate of $17 billion for the current year represents a 25% boost over the estimated $13.55 billion spent last year on new houses.

Public works next year will show substantial gains in two important areas and significant declines in three, the Construction Division foresees. Spending on government office buildings should rise $110 million above the current year to a 1960 total of $700 million, the forecasters believe. Public service enterprises, such as state and municipal public utilities, should boost expenditures in this category by 25% ($140 million) to a new high of $700 million.

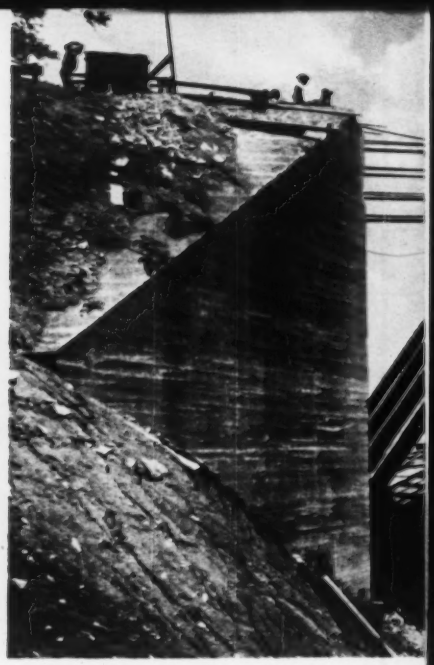
Tapering off of Capehart housing construction for military families will spell a $100-million decrease in this type of building, the forecasters say. Military construction in the continental U. S. will decline by $115 million next year, on the basis of estimates from the Defense Department, the statisticians report.

Highway spending, however, won't take as hard a jolt as some roadbuilders expect.

The department looks for $5.7 billion of spending on highway construction next year, down $300 million—or only 2%—from the high of $5.8 billion shown in the revised figure for this year.

All figures for 1958 and 1959 are based on a Census Bureau restudy of monthly construction activity for the full twelve months of 1958 and the first ten months of 1959. The final two months of the current year have been estimated.

THE METHOD: Prestressed truss panels were cast on site . . .



Steel bars served as the initial top

Old Idea, New Methods Used for

The new 300-ft bridge over Cuba's Zaza River combines the ancient principle of cantilever construction with the use of precast prestressed concrete truss segments.

The marriage resulted in rapid fabrication of components, ease of construction and an economic use of materials (see box). No falsework was needed.

The bridge replaces a single span steel truss bridge in Las Villas Province that was destroyed during the revolution. The piers and abutments of the old bridge were still sound and the new structure was designed to use them.

The Zaza River bridge has two 117-ft cantilevers with a 66-ft suspended center span.

Each cantilever is made up of four parallel trusses. Each truss is composed of five 23-ft-long panels that vary in depth from 33 ft to 7 ft.

The truss panels were precast on site. Forms for all five panels were laid out and the four complete trusses for each cantilever were cast one on top of the other to minimize form work and get exact duplication.

The trusses were precast in triangular shapes, each composed of a reinforced diagonal and bottom chord and a post-tensioned vertical leg. A pin joint was cast into each end of the bottom chord. Pins assured alignment in casting.

The first triangular panels, those next to the abutments, were lifted into place and connected to the face of the abutments by pin joints. A temporary top chord was created for each panel by threading five 1¼-in.-dia steel bars through preformed holes at the apex of the panel and anchoring them.

As subsequent triangular concrete segments were added, the top chords of the trusses were extended panel by panel by adding steel bars.

The cantilevers were anchored to huge reinforced concrete pads buried about 20 ft below the slabs some 70 ft behind the abutments. Post-tensioned concrete struts connect the pads with the slabs. Back fill over the pads adds to the dead weight.

When all the panels were in place, road deck forms were built. An additional seven 1¼-in.-dia steel bars were placed over the entire length of each truss, making 12 bars per truss.

The top chord for each truss was formed by the poured-in-place deck.

Pin joints were concreted then to develop full rigidity and provide the composite unity to support the final compressive stresses in the trusses.

After the deck was cured, the seven additional bars in the top chord of each truss were tensioned to 110,000 psi.

Four 66-ft precast prestressed concrete I-beams were lifted into place between the two cantilevers to complete the bridge and the last portion of the deck slab was placed.

A nine-man crew took only seven working days to erect each of the two cantilevers. Despite a 12-day strike and 20 days of inclement weather, the entire structure took only six months.

The designers, Mario G. Suarez and Arango y Salas, supervised fabrication and erection of the bridge. Compania Territorial y Constructora Celo S. A. was contractor. Stressteel Corp., Wilkes-Barre, Pa., provided prestressing materials.

Zaza River Bridge Didn't Need Much Material

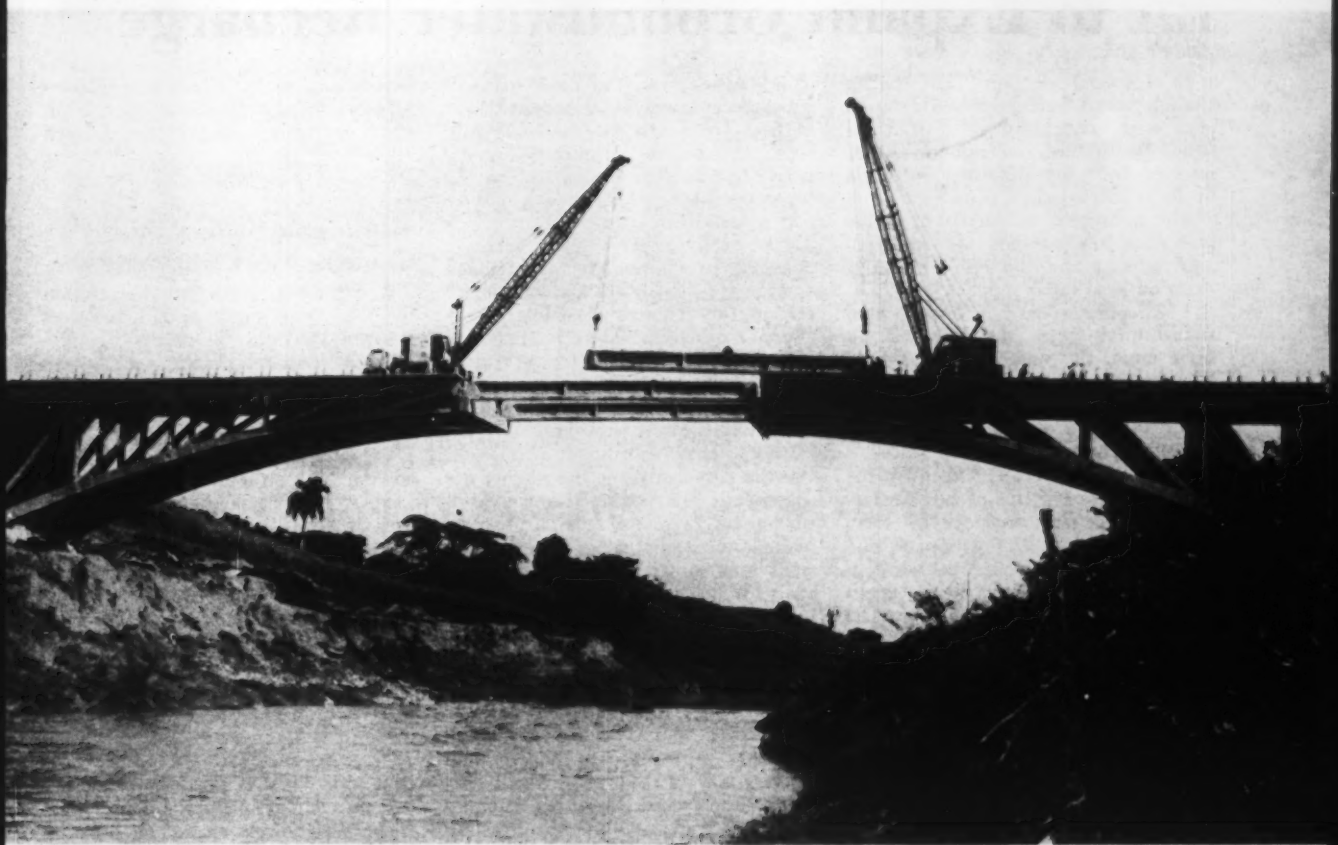
300-ft span—37-ft width

Material	Unit	Total	Per Sq Ft
Concrete (3,000 psi)	cu yd	386	0.034
Concrete (5,000 psi)	cu yd	269	0.024
Reinforcing Steel	cwt	1,973	0.178
High Tensile Steel	cwt	568	0.051
Flexible Tubing, Anchoring Assemblies etc. for Prestressing	cwt	89	0.008
Reinforced Concrete Railing	ft	600	0.054
Misc. Structural Steel Plates	cwt	118	0.010
Asphalt Concrete Pavement (2 in.)	sq ft	7,179	0.646

chords of cantilevered panels . . .

Top chords were formed when bridge deck concrete was placed.

New Bridge on Old Foundations



THE RESULT: A low-cost bridge built without falsework in less than six months.

Why Corps' Plans Cost Money Now

The new rule requiring all bidders on Corps of Engineer projects to pay for job plans (ENR Nov. 26, p. 17) is now in effect at all Corps district offices. It applies to both military construction and civil works.

Paying for Corps' plans will affect the bidding costs of a sizable number of contractors. The Corps in the course of a year awards some 1,500 to 2,000 military construction contracts and about 500 major civil works contracts, plus perhaps ten times as many minor contracts for civil works projects, including supply contracts. About half of the minor contracts, especially the ones under $5,000, require no issuance of plans to prospective bidders. But all other contracts, adding up to maybe 7,000 a year or more, call for bidding on work or supply items as shown in the plans.

The charge for plans varies with the size of the bundle. Every applicant must buy one full set of scaled-down plans at 10 cents per sheet, or a minimum of $5 for sets that run less than 50 sheets but more than five. For dredging jobs or other work that requires five sheets or fewer, the plans cost nothing to an applicant with a legitimate interest in bidding on the project. Specifications are included at no extra charge with each full set of scaled-down plans.

To applicants who have bought the half-scale set, full-scale prints are available at a price of 50 cents per sheet. The bidder can buy as many or as few of these full-scale plans as he wants.

Main purpose of the new rule is to get all the districts to follow the same policy. The general practice of the districts has been to require a deposit, returnable to the bidder when he sent back the plans. This amounted to a giveaway, as marked-up or mutilated sheets that came back could not be salvaged for use again.

Some districts, however, gave the plans away gratis to interested applicants. This practice ran costs way up in cities where brokers who own nothing more than a telephone number want free plans on every project the Corps advertises.

There was wide disparity in use of small-scale prints, too. The districts in one division would issue nothing but half-scale plans, while another division would issue nothing but full-scale sheets.

All these differences are resolved under the new blanket policy. The system of charging applicants for the cost of plans had been broadly agreed to by the task unit of Associated General Contractors that meets periodically with the Corps to work out problems on contract forms and specifications.

Cost to the bidder of the new policy varies with the job he's shooting for. A dam project may run 60 to 75 sheets, while a military construction job often requires 300 sheets.

As a rough average, one district office in a southeastern port city can expect one bid on a civil works project for every five sets of plans issued, and about one out of three sets issued goes to a potential prime-contractor bidder. Applicants take out one to three sets each.

Military projects often run much higher in number of applicants. A conspicuous example is one missile base for which more than 1,200 sets of plans were issued to applicants.

LA to Expand Groundwater Recharge

In a special election, Los Angeles County voters have approved creation of a water replenishment district designed to restore underground water reserves and stop salt-water intrusion in the county's coastal plain area.

The measure is an outgrowth of the increasing concentration of population and industry and the resultant heavy drain on local water supplies.

The reported deficit in underground storage totals about 700,000 acre-ft. In some areas, the water table has been lowered as much as 100 ft below sea level, resulting in the intrusion of seawater into the underground reserves of several coastal localities.

The district covers 420 sq mi in the central and west basins of Los Angeles County. The area includes 29 cities with a combined population of 2.5 million. It extends from Whittier Narrows Dam to the Long Beach ocean front on the east, and from Playa Del Rey to San Pedro on the west.

The new measure authorizes the district to buy the water it needs.

Costs will be met by levying pumping assessments on water companies and the larger industrial water users. The district budget will be upward of $1.2 million annually, figured on using at least 100,000 acre-ft of water at a minimum price of $12 an acre-ft.

The new district will work closely with existing water agencies. It will buy water from the Metropolitan Water District of Southern California and route it to large water-spreading operations, such as the one operated by the Los Angeles County Flood Control District near Whittier Narrows Dam. Such district facilities will be used whenever possible. In addition, the district will contract for all additional replenishment construction required, including the facilities for halting salt-water intrusion.

The district's program for preventing further salt-water pollution will consist of providing funds for expanding the flood-control district's "Barrier Project" (ENR May 2, 1957, p. 24). For the past five years, the district has successfully shut out salt-water intrusion along a 7,000-ft coastal strip by maintaining a pilot series of recharging wells approximately 500 to 1,000 ft apart. Water is continuously discharged into the wells, setting up hydrostatic pressures sufficient to seal off salt-water penetration.

The plan calls for drilling 50 to 75 more recharge wells along 11 miles of basin coast line. There is substantial salt-water intrusion into underground reserves now in three areas: the El Segundo-Beach cities area; the Dominquez Harbor area and Los Alamitos Gap near Long Beach.

The new proposal received the support of important industrial and community officials. In addition to moderate assessment charges, they favored other aspects of the program, including the economy of underground storage.

Minnesota Bridge Builder Chooses Steel Alternate

A Minnesota contractor has elected to build two small bridges as steel stringer structures, an alternate to prestressed concrete, despite special provisions that grant no time extension in case of delays in delivery of steel.

Antler-Walker Corp., St. Paul, won the contract on its low bid of $131,633 for both structures.

Span lengths of both bridges are 34.7–62.3–34.7 ft. The steel alternate was composed of 33-in., wide-flange, 130-lb-per-ft stringers, three span continuous, designed for composite action with the roadway in the center span.

The prestressed concrete design called for three simple spans of 36-in.-deep stringers. They could be post-tensioned or pre-tensioned.

Construction must be started by May 15 and completed by November 1 of next year. There is a penalty of $50 per day, plus engineers and inspectors time, if the bridge decks are not in place by October 1, plus an additional $25 per day after November 1.

Flood Takes Out 4-Lane Highway

A spectacular casualty in western Washington's recent record floods was the state's main east-west traffic artery, Snoqualmie Pass Highway. The swollen Snoqualmie River gouged out 1,000 ft of the four-lane road.

The floods also washed out at least three highway bridges and wreaked heavy damage on railway bridges and roadways. At the construction site of the Corps of Engineers' Howard Hanson Dam, not yet advanced enough to help prevent floods like this, the Green River damaged a cofferdam, destroyed a temporary bridge and flooded a partly built diversion tunnel.

Heavy rains on top of snow in the Cascades brought on the floods. Virtually all traffic through the mountains stopped for a time.

Culture Center Needs Big Money

All that now stands in the way of a National Cultural Center in Washington, D. C., is $61 million.

A fund-raising drive begins early next year. If there aren't enough private funds to finance construction by September, 1963, then legislation authorizing the center becomes void.

Key feature of the structure will be the roof, a modified circle, 780 ft in diameter (see sketch). It will cover some 320,000 sq ft of enclosed space. At the center, a domed concrete space truss, 180 ft in diameter, will support plastic sheathing. The rest of the roof will be reinforced concrete beam-and-slab construction.

The building will face the Potomac River. The roof will cantilever over a terrace at the river's edge. Supporting the cantilevered roof will be steel columns, 75 ft high, encased in bronze or gold leaf. The building will be faced in white travertine, a type of marble.

Under the big roof will be a grand salon for government ceremonies, a theater, a concert hall, an opera house, two small auditoriums and a restaurant.

Rhode Island Ideas

More roads, Narragansett Bay bridge recommended

A $35-million to $45-million bridge over the East Passage of Narragansett Bay and a $200-million roadbuilding program have been recommended for Rhode Island.

Francis G. Dwyer, the new chairman of the state's Turnpike and Bridge Authority, is campaigning for a 12,000-ft bridge between Jamestown and Newport. The proposed structure would have a 2,200-ft suspension span in the center over the main ship channel. At its highest point, the suspended span would be 400 ft above mean high water.

If Rhode Island builds a highway to connect with the proposed Connecticut highway from New London, Conn., to Hopkinton, R. I., the Jamestown-Newport Bridge would complete the last link in the Southern New England Thruway, Mr. Dwyer says.

The Navy must approve construction plans and the state must authorize sale of bonds to finance the bridge and schedule approach highways before the bridge can become a reality.

The $200-million roadbuilding program would include a Providence throughway route around the city as the best means of speeding industrial development.

Arthur D. Little, Inc., a Cambridge, Mass., research firm, advised the state to invest an extra $80 million in highways over the next five years.

Rhode Island's present highway program for the next five years calls for completion of the North-South Freeway only from the Massachusetts line at Pawtucket to South Providence. The circumferential route would not be started until several years later.

The Little plan calls for completion of the freeway south to the Kent County Expressway and of the entire circumferential highway to the north and west of metropolitan Providence within five years.

Former AWWA President Killed in His Office

W. Victor Weir, president of the St. Louis County Water Co. and 1950-51 president of the American Water Works Association, was shot to death in his office by a man involved in a real estate foreclosure by the water company.

A civil engineering graduate of Washington University, St. Louis, Mr. Weir worked his way up through the ranks. Besides the St. Louis utility, he headed five other water companies—in Missouri, Illinois, Indiana and New York.

Cleveland builds new piers to win Seaway traffic... Designing with USS Steel Sheet Piling saves time and money

Ready for Seaway Traffic. Cleveland's new West 6th Street Pier built in fast time with 2,252 tons of USS Steel Sheet Piling.

Great Lakes cities are competing with each other to build facilities to attract and service St. Lawrence Seaway traffic. The City of Cleveland was one of the first to start, and built the new West 3rd Street Pier and West 6th Street Pier to meet Seaway specification depths of 27 feet alongside. The West 3rd Street Pier is 710 feet long and 509 feet wide and has an area of 4.1 acres. The West 6th Street Pier is 697 feet long, 297 feet wide and has an area of 4.65 acres. Both piers are constructed of USS Steel Sheet Piling which is utilized to enclose the developed area. These piers may well be the forerunners of many similar structures being considered for Great Lakes ports.

The West 6th Street Pier is the newest of the two, having been only recently completed. For this job the engineers considered various types of structures but finally selected an anchored steel sheet pile bulkhead to enclose the area to be developed. Comparative bids proved this to be the most economical type of pier. What's more, it could be built quickly.

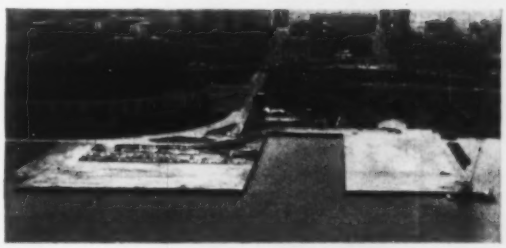
For maximum beam strength, Z-type steel sheet piling was chosen. The general contractor, Merritt-Chapman & Scott Corporation, Cleveland, Ohio, wanted quick deliveries and service . . . so they ordered USS Steel Sheet Piling. They used 2,252 tons of Z piles in 60-foot and 70-foot lengths. The steel sheet piling was driven to 33 feet of penetration beyond the 27-foot dredged depth. Side walls of the pier are retained with double channel wales and 3-inch diameter tie rod assemblies extending across the full width of the pier. The front wall is anchored with wales and the tie rods to batter pile assemblies incorporating concrete filled pipe piles. A novel fender system protects the pier in which cored rubber inserts furnish required resilience.

Theoretical assumptions relative to horizontal pressures on earth retaining structures are still undergoing investigation by scientists. In order to assist in the development of more accurate knowledge of this subject, permanent strain gauges were installed at critical points in the piling.

The design of these structures was under the direction of W. J. Rogers, Director of Port Control, and J. H. Rowland, Commissioner of Harbors, City of Cleveland. The Osborn Engineering Co. of Cleveland were Consulting Engineers.

When you need any type of steel piling, steel sheet piling, H-piles, or pipe piles, call the nearest United States Steel office, or contact United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS is a registered trademark



Air view of the 202,257-square-foot West 6th Street Pier and to the left the 177,800-square-foot West 3rd Street Pier. Both piers constructed by Merritt-Chapman & Scott.

USS Z Piling offers strength and economy in building piers and bulkheads.

USS

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United States Steel Export Company

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Around the World . . .

• **Cleveland plans for jets**—Cleveland will begin construction this winter on a $4-million jet runway at Hopkins Airport. The strip is scheduled for completion by December, 1960.

• **Hydro for Argentina**—Argentina has commissioned Van Sickle Associated, Inc., Denver consultants, to plan a hydroelectric power and irrigation project for the Soto River Basin in the state of Cordoba. Estimated cost: $10 million to $12 million.

• **D. C. project**—Housing and Home Finance Administration is considering plans for a $20-million, 800-unit apartment project in Washington, D. C. If approved, land will be sold to architects Kennard & Kennard, Washington, D. C. That firm is also the developer.

• **Free right-of-way**—Small cities in Kentucky are no longer required to pay costs for rights-of-way for road projects in their city limits. This policy was adopted because too many highway projects had to be abandoned when second-class cities lacked funds to buy right-of-way.

• **Single bid system wanted**—North Carolina contractors want a single bid system instead of the multiple bid system. Currently, bids for public buildings must be received for general construction and electrical, plumbing, heating and air conditioning work. Contractors will make their move during the 1961 state legislative session.

• **The gulls who came to dinner**—Duluth, Minn., may have to close a city land fill because gulls attracted by the garbage are a hazard to planes using a nearby airport. Bombs, buckshot and thicker coverings of dirt have been tried, but the gulls are not discouraged. In between scavenging bouts they have flown into jet intakes and collided with radar equipment and planes.

• **Port for Honduras**—The Republic of Honduras is reported to be planning a $5.5-million port for ocean-going ships near Amapala on the Gulf of Fonseca. The proposed port would serve the southern part of the country and relieve it of dependence on the port of Cutuco in San Salvador.

• **Family research**—Homebuilders should test a new house design by getting a typical family to live in it, says William T. Kelley, University of Pennsylvania marketing professor. Live tests would give builders information on actual living patterns, he says.

• **Vancouver development**—Construction will start soon on revised plans for the $32-million Park Royal Shopping Center, Vancouver, B. C. Besides the shopping center, the project includes apartments, a hotel, a medical-dental building and parking facilities.

• **Road, rail, air terminal?**—Los Angeles may convert its Union Station to a combined railroad, bus and helicopter terminal that would serve more than 7.5 million passengers per year. That's the main recommendation of a nine-month study made by the city's Technical Coordinating Committee on Streets and Highways.

• **Jersey apartments**—Land fill work has begun on a $15-million apartment house project south of the George Washington Bridge. Two 20-story and two 10-story structures will house 920 families.

• **Big airport contract**—A $24-million contract for 12 major buildings at Los Angeles International Airport has been awarded to Robert E. McKee, Inc., El Paso, Tex.

• **River bridges rise**—Shipping interests are pressing for a minimum clearance of 55 ft for bridges over the upper Mississippi. They claim that larger boats will make them necessary. The Minnesota department of highways has revised its preliminary 35-ft clearance to 45 ft.

• **Harlem housing project**—The New York Housing Authority will build a $23.3-million, low-rent apartment project in Harlem.

• **If ambition were money**—The University of Michigan has approved plans for spending $124 million on a five-year construction and remodeling program for educational facilities, and another $23 million for a medical center. But there's one hitch: The money must come from the state, which is having trouble at the present time in just meeting daily operating expenses.

Conflict of Interest

Admiral turned contractor loses retirement pay

The Navy has barred retirement pay to a former civil engineering admiral, now the president of a construction firm, because the admiral's company was awarded two Navy construction contracts in violation of "conflict of interest" laws.

Retired Naval officers are forbidden by law from "selling, contracting, or negotiating to sell naval supplies or war materials" to the Navy. The penalty: withholding retirement pay. The penalized ex-Navy man is Rear Admiral Carl H. Cotter, now president of Capital Construction Co., Inc., Puerto Rico.

Admiral Cotter's case comes against the backdrop of the recent Congressional investigation into alleged influence peddling by retired military brass.

The subcomittee is expected to publish a report on the investigation in January. According to Washington insiders, the report will recommend changes in the conflict-of-interest laws relating to retired military officers. But these reportedly will make the rules uniform for each of the military services rather than tighten the over-all policy.

As the rules stand now, the ban on selling applies for only two years after retirement in the case of Army and Air Force officers, for lifetime in the case of Navy and Marine Corps personnel.

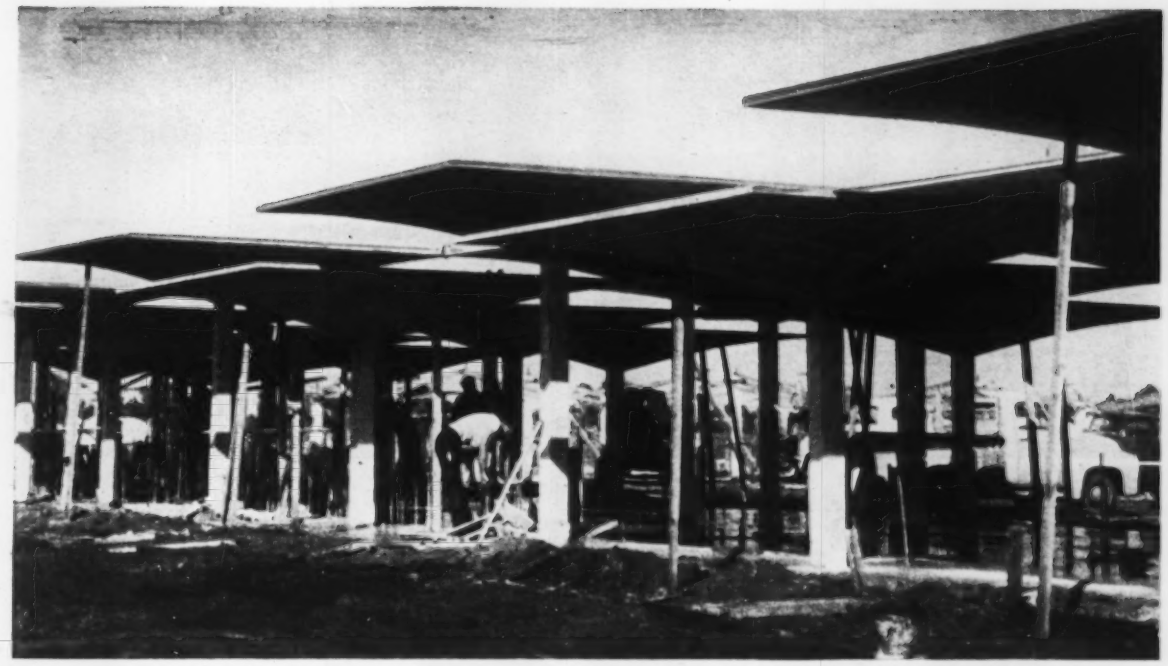
At issue in Admiral Cotter's case were these questions: Does performance on a construction contract constitute the sale of tangible property? Does signing a construction proposal and contract constitute "selling" as defined in the law?

The General Accounting Office answered "yes" to both questions. The admiral claims he took no part in the arrangements leading to the contract other than signing the bid proposals and the contracts.

Invitations to bid were advertised for both contracts. The two awards went to the admiral's Capital Construction Co., Inc. as low bidder.

The contracts called for extension and reinforcement of existing runways and new taxiways and for "various airport development projects" at the U. S. Naval Station, Roosevelt Roads, Puerto Rico. Included were agreements to "furnish all labor, equipment, and materials in connection with constructing the airfield improvements."

Presumably the inclusion of these agreements led to GAO's ruling that the contracts provided for the "sale of supplies and material." Some Pentagon officials believe, however, that providing services such as architectural drawings, plans, and specifications does not fall under the restriction as it now stands.



SKYLIGHTING IS PROVIDED by placing every other roof slab on a higher column, then filling the vertical spaces between the slightly overlapping slabs with translucent plastic. Motel has 20 units, each 14′ x 28′.

Hyperbolic paraboloid shells form motel roof

EIGHTY CONCRETE SHELLS, site-cast in forms shaped like inside-out umbrellas, provide an arresting yet functional roof for this motel on the Tamiami Trail in Florida. The hyperbolic paraboloid squares, 14′5″ on a side and 2″ thick, are placed atop prestressed concrete columns which alternate in height, permitting the squares to overlap. The resulting vertical spaces between the staggered slabs are filled with translucent plastic to form skylights.

The steel-reinforced columns are welded to steel plates set in 10″ x 2½′ square concrete footers below the concrete floor slab. This provides adequate foundation support in the sand and marl soil. Each paraboloid roof shell, dropping 2′ from perimeter to center, drains rain to a pipe in the supporting column, which connects with a central drainage system.

Each shell required 1½ cu. yds. of ready-mixed concrete. Since the shells were removed from molds within 3 days after casting, to permit re-use of the forms, an unusually rich mix was employed to assure high early strength. A 3-week curing period followed.

Uniform high quality of concrete and convenient placement in the forms were assured by using truck mixers of certified design, capacity, mixing speed and water control accuracy.

ASSEMBLY LINE PRECASTING in re-usable molds reduced erection time. Each shell weighed 5 tons. Old tires protected edges while moving. Victor A. Lundy, Sarasota, Fla., architect; Spear, Inc., Venice, Fla., contractor.

FASTENING THE COLLAR: Steel collar, centered in roof slab, is welded to steel in supporting column. Rain water drains down through pipe in column.

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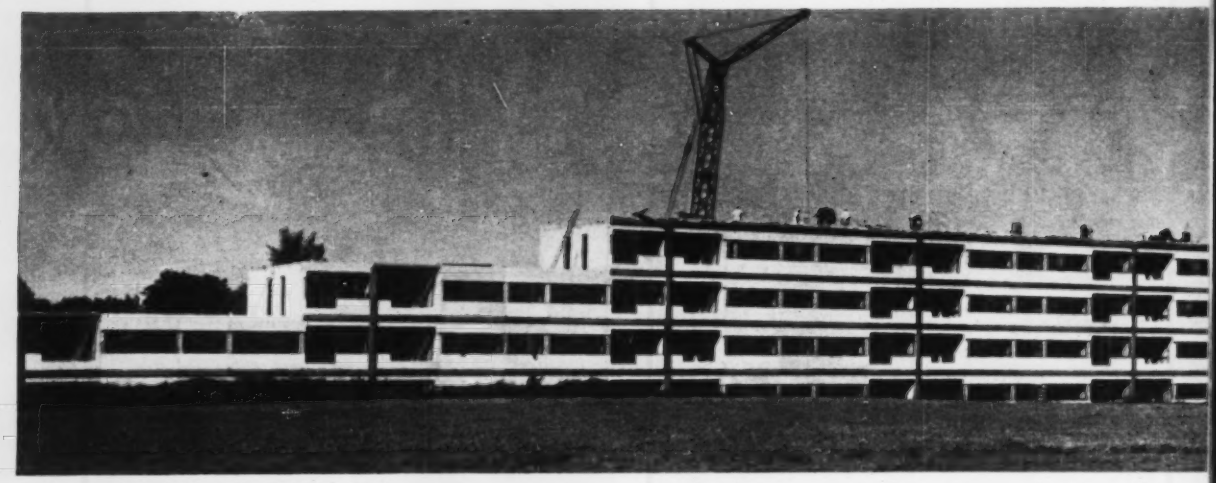


Prefab Apartments: Produced in

In just 22 weeks, Danish builders have put up 116 preassembled apartment units in Hamburg, Germany. The project is a good demonstration of how far you can stretch the "pre" in precasting and prefabricating.

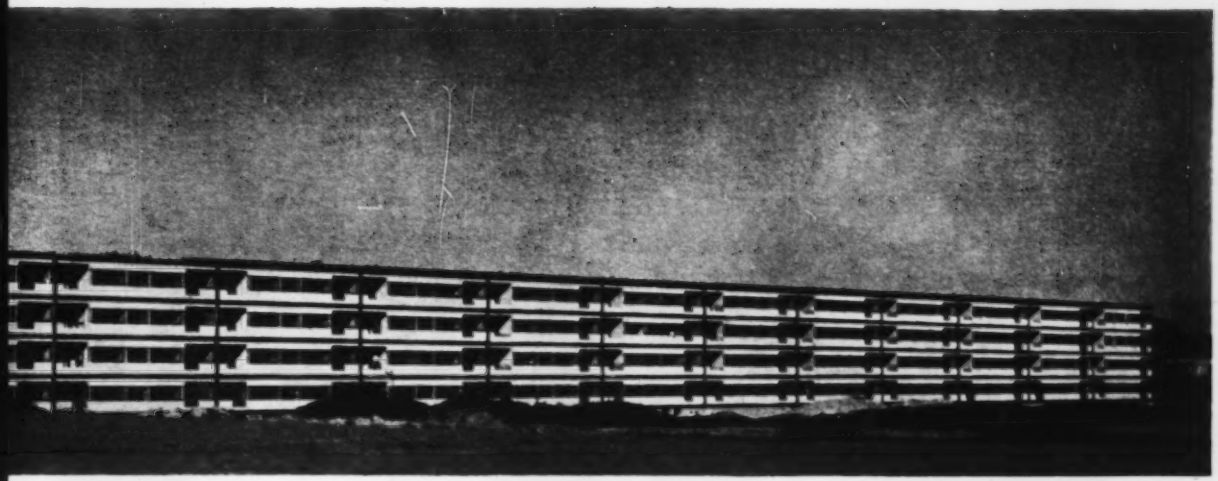
Hamburg was fighting a losing battle against a growing housing shortage. Shortage of skilled construction workers was a major reason. So the city surveyed developments in housing construction throughout Europe.

Conclusion: Only a thoroughly "industrialized" system of housing construction could bring housing capacity up to demand.

The survey ended at Larsen & Neilsen Constructors, Ltd., of Copenhagen. L&N got into the precasting business soon after World War II. The firm began by precasting and prestressing for industrial construction; then it started producing and erecting housing projects, using prefinished components.

Complete building sections . . .

Traveled by railroad from the factory to the site on a tight transport-

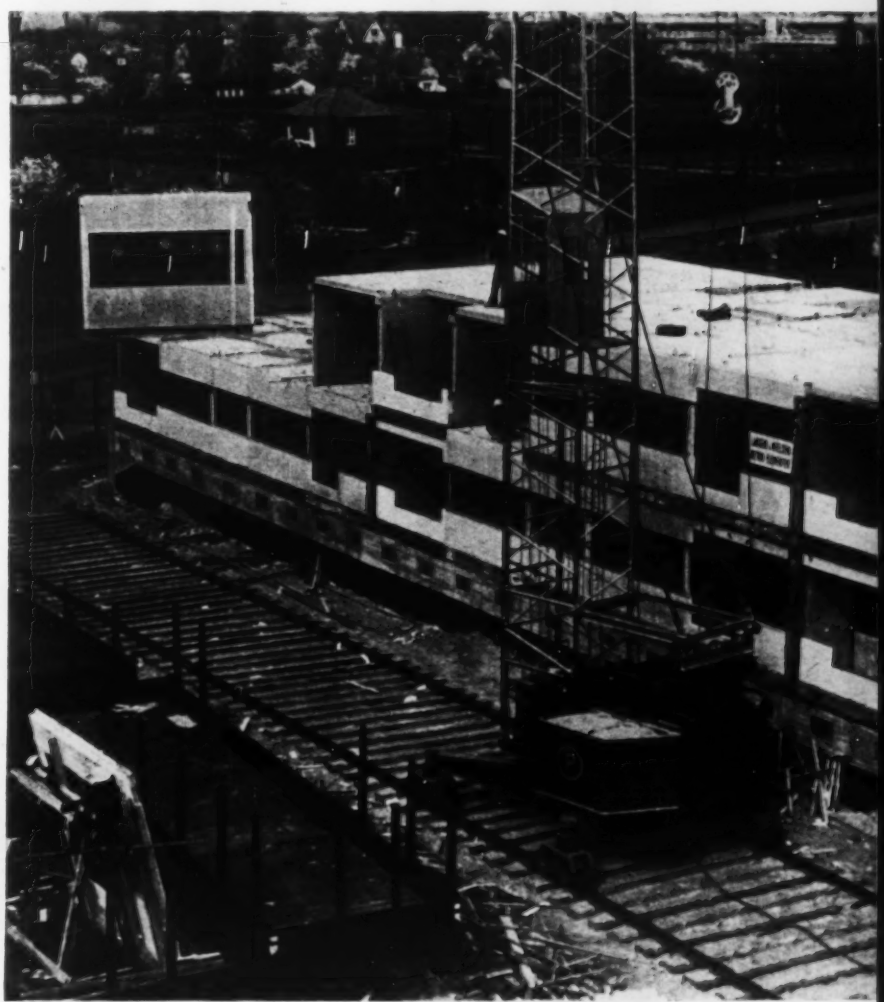


Copenhagen, Erected in Germany

L&M prefabricated all components for the apartments in its Copenhagen plant, cutting on-site labor to a minimum. Then components were shipped to the site in Hamburg. Here's how it worked:

In the plant, floor and ceiling slabs are cast and finished, complete with any necessary horizontal utility lines. Partitions include door frames, doors and all hardware. Exterior wall panels leave the factory ready to use, with glass

erection schedule.



Crane lifts panel right from flatcar to the building.

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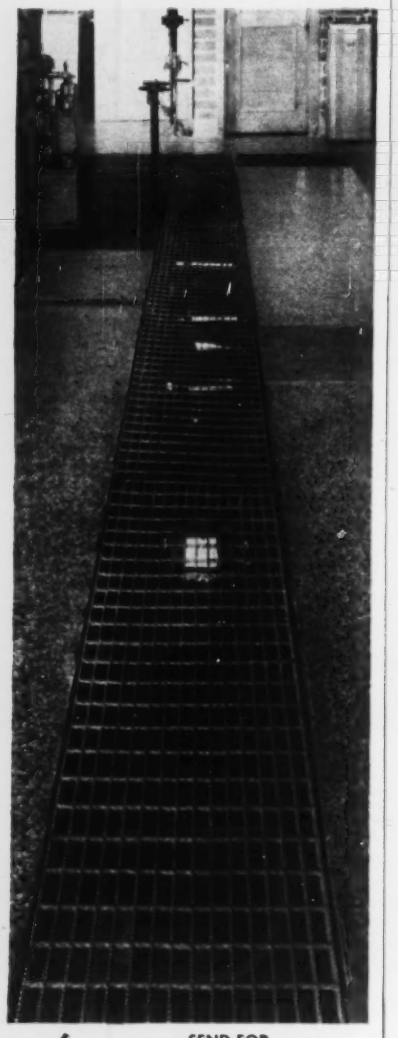
Note serrated bearing bars . . .
AN ADDITIONAL SAFETY PRECAUTION!



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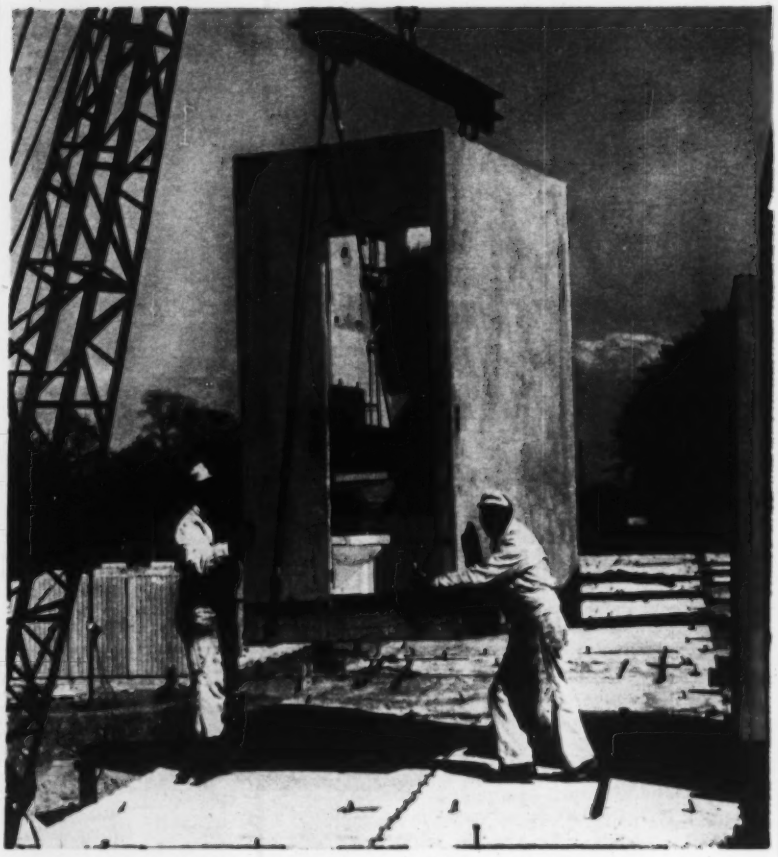


A complete, precast bathroom is guided into place.

in the window frames. On some jobs, even venetian blinds go in at the factory.

Precast bathroom units include all plumbing fixtures to be hooked up to the plumbing risers in the assembled building.

Each day last summer a train left the plant carrying all components for two apartment units. And every day a train pulled onto the Hamburg building site 600 miles away.

Temporary rail sidings parallelled the apartment buildings. Rail cranes running between the siding and building picked apartment components right off the flatcars and placed them in the four-story structure. There wasn't any middle step.

There were only 10 construction workers at most on the site for the entire superstructure erection. And only three were skilled workers—the crane operator and two supervisors from L&N.

The crew completed two apartments each day, ready for heating. (In the winter, this unit-construction method pays extra dividends. All remaining finish work goes on inside as the job progresses.)

Site clearance began in mid-February. A local contractor built the foundations. Superstructure work started in March. The first 48 apartment units were erected by the end of April and were ready for occupancy four weeks later. A second section of 68 units was started in June and followed the same schedule.

Housing sections at the Hamburg project are identical to the "strip" structures built in Copenhagen (picture) but they are divided into smaller buildings. L&N took components right from their regular production runs for the job, and Hamburg waived differences in the building codes to allow rapid construction.

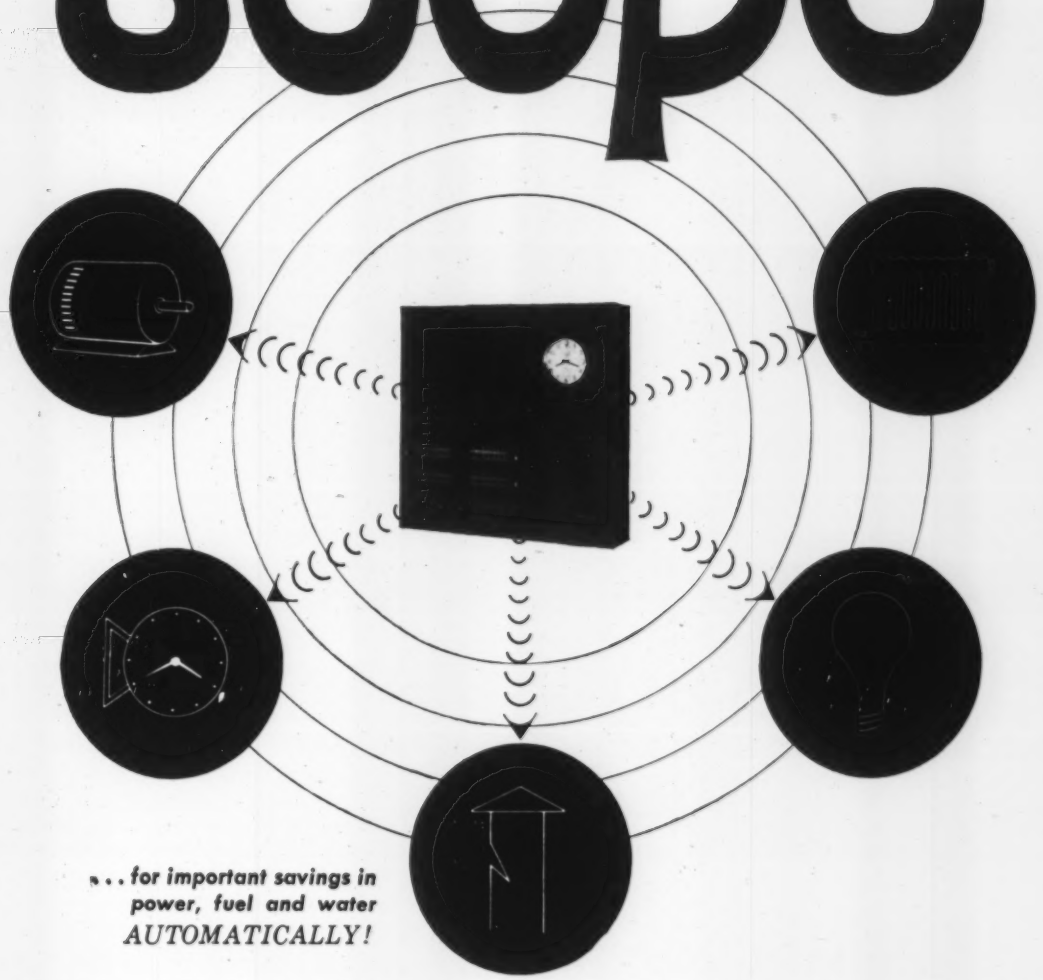
Each housing section contains 24 three-room and 24 four-room apartments at 690 and 785 sq ft respectively.

Heaviest section weighed 3.4 tons. Exterior sandwich panel walls are 6.9 in. thick, with polystyrene cores. Inside, bearing panels are 6.9 in. thick and simple partitions are 2.4 in. thick. All are a standard 8 ft 6 in. high. Floor and roof panels are a uniform 7 in. deep, cast with hollow cores.

Joint sealing was done with foam rubber filling and a thermoplastic caulking compound.

Hamburg officials say the project cost was lower than for on-site construction —including the cost of transporting components from Copenhagen.

scope



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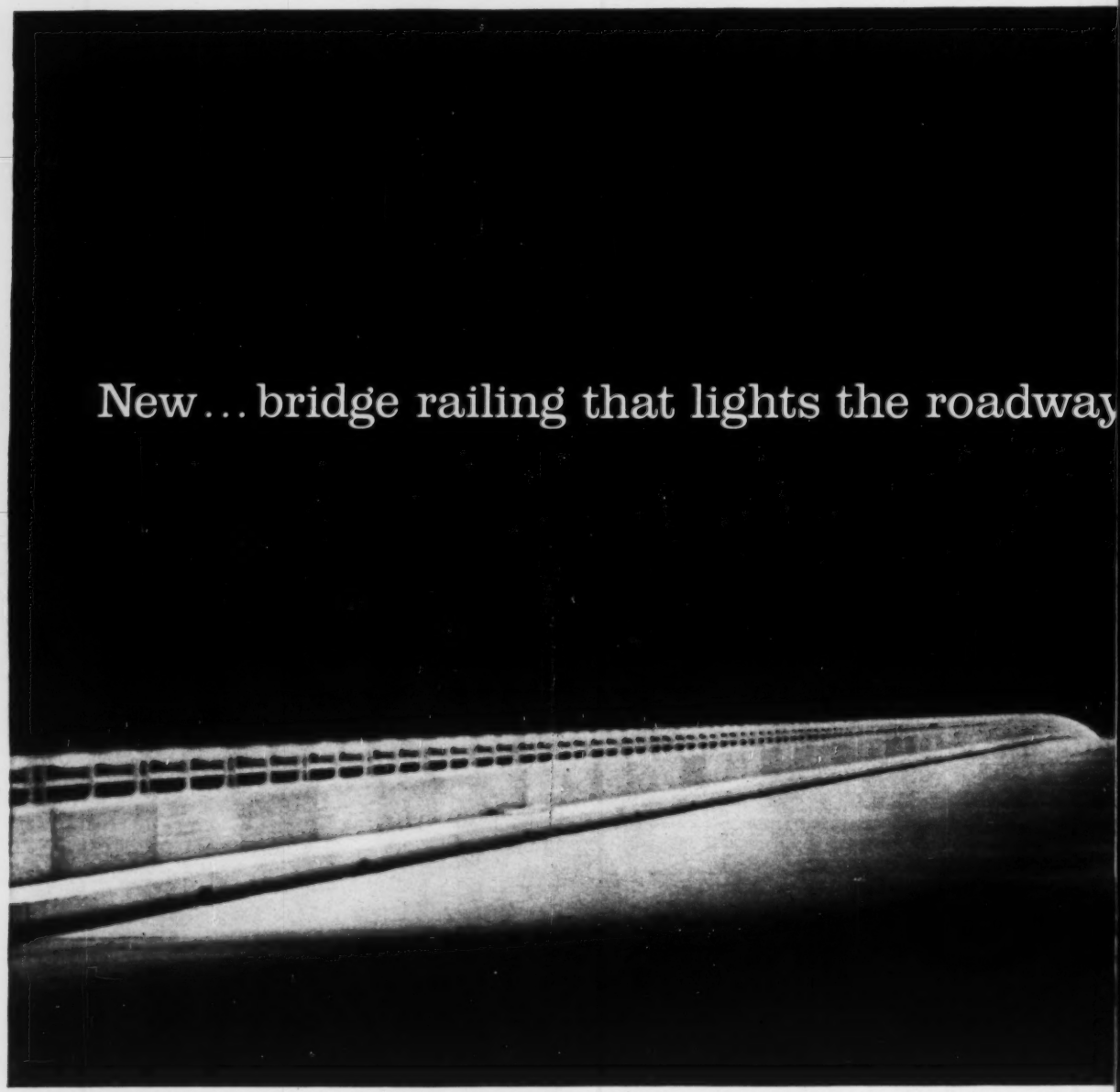
New... bridge railing that lights the roadway



Manahawkin (N. J.) Causeway Bridge is America's first to use the RAILIGHT concept. General Contractor: Conduit & Foundations, Phila., Pa.

Totally new concept in roadway lighting...General Electric luminaires built into Flynn aluminum bridge railing

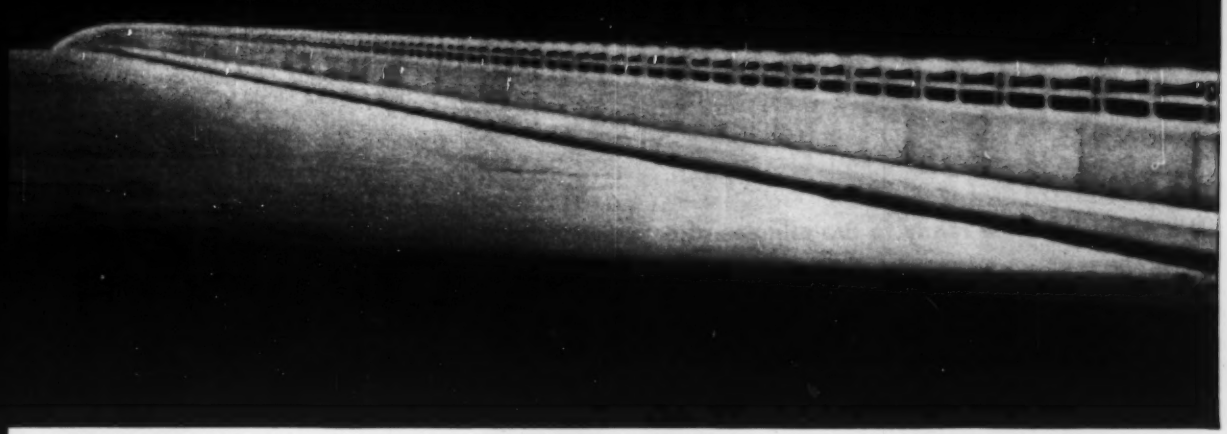
RAILIGHT*, available from Michael Flynn, makes roadway lighting a function of bridge railing. It is based on a "pet idea" of Dwight R. G. Palmer, New Jersey State Highway Commissioner, that was developed jointly by General Electric and Flynn in the custom-made Manahawkin (N.J.) Causeway Bridge.

Now in standard units for all roadway installations, RAILIGHT simplifies installation, makes driving safer and maintenance easier. It gives almost perfect uniformity of illumination along the roadway . . . makes it possible to use a light source of low brightness, which eliminates glare. All light is reflected and directed across the roadway for improved visibilit in fog, snow or rain. Only the roadway is lighte for most efficient use of candle power supplie

Maintenance for RAILIGHT is greatly simplifie because of the accessibility of the luminaires, and th quality of the Flynn bridge railing. Non-rustin aluminum, it never needs painting. It's so tough an durable, nothing short of an accident can make re placement necessary. What's more, two men, wit wrenches as their principal tools, can install ligh weight Flynn aluminum. No overmanned crews, n lift trucks, no cranes are needed.

Write to Michael Flynn Manufacturing Company Main Office for additional information on RAILIGH

LUPTON RAILIGHT* by MICHAEL FLYNN



Steel & Railing erected by Cornell & Co., Inc., Woodbury, N. J. Lighting: General Electric.

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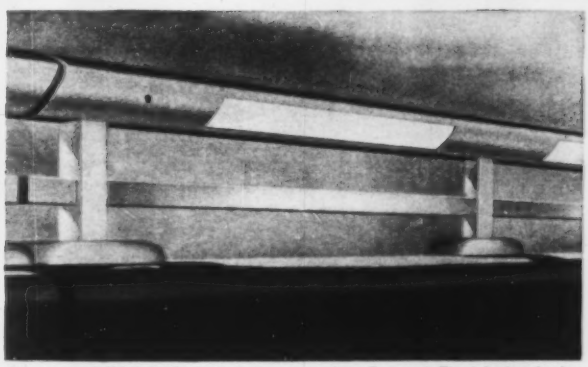
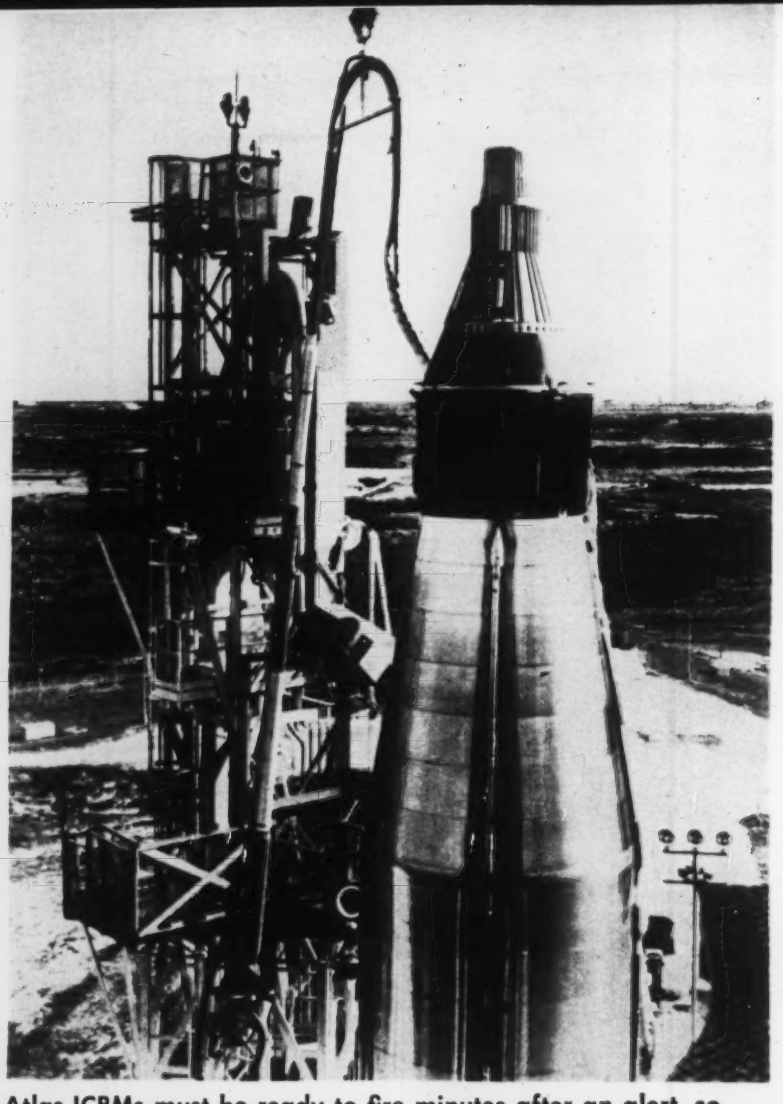
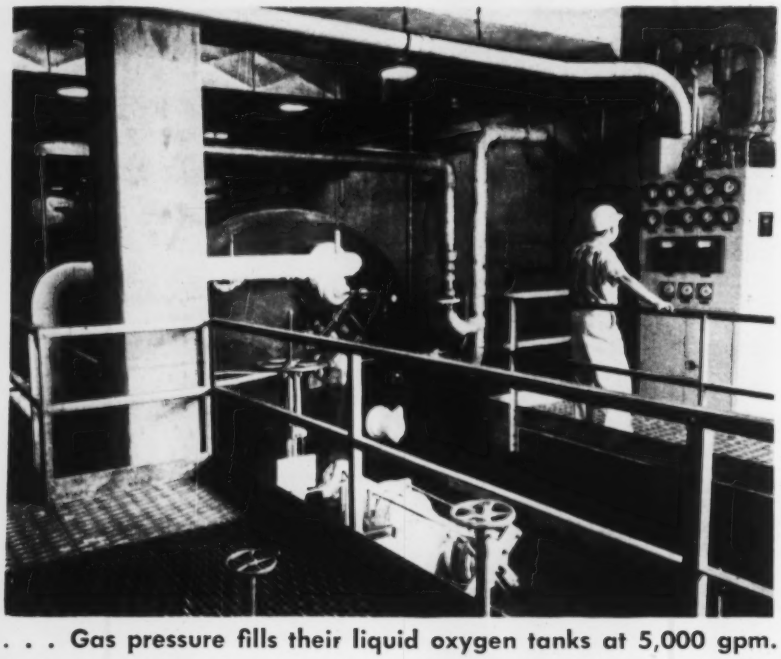


Closeup of RAILIGHT installation showing General Electric luminaire recessed in cut-out section of Flynn aluminum bridge railing. You enjoy wide latitude in center panel design.

Missile Age



Atlas ICBMs must be ready to fire minutes after an alert, so . . .



. . . Gas pressure fills their liquid oxygen tanks at 5,000 gpm.

Builders and designers of chemical process plants, petroleum refineries and airport facilities may be using a high-speed fuel loading system developed for the Atlas intercontinental ballistic missile long after that weapon is obsolete.

Now, this high-speed fueling system is being used only for missiles. But it's expected to have broad application in industry.

The Atlas missile system involves fueling, using liquid oxygen, at 5,000 gpm. That's an extraordinarily fast rate for the low temperature (−297F) and the hazardous nature of the fluid.

A similar system transfers the other major fuel component, a highly refined kerosene, into the rocket at 3,500 gpm.

Gas pressure is used in both systems. No pumps are included. Basically, the system works like a child's water pistol.

Liquid oxygen, known as LOX to the men who build and fire missiles, is used as a concentrated source of oxygen for ignition of the rocket's fuel. The nature of LOX and the Atlas make a rapid propellant loading system necessary.

It isn't practical to maintain the Atlas full of liquid oxygen. The pale blue fluid is highly volatile and its extremely frigid temperature would demand an impossibly expensive installation to prevent boil-off. The lightweight structure of the Atlas makes it unwise to leave it fully fueled indefinitely.

The chief reason for developing a fast loading system is available reaction time, the time between detection of the launching of an enemy missile and its impact on target. The Atlas must be launched within the reaction time.

Development of the loading system progressed along with development of the missile. The Air Force Ballistic Missile Division assigned the development of the loading system to Arthur D. Little, Inc., of Cambridge, Mass. Criteria given ADL were that the system be fully automatic, that it use proven industrial components, and that accuracy be within 0.5% by volume.

A principal concern of the feasibility study was the method of liquid oxygen transfer. Test programs at Cape Canaveral have used available LOX pumps that have maximum capacity of 500 gpm. To develop 5,000 gpm transfer rates, a battery of ten such pumps would be required. This would develop a large peak-power demand. The number of units in such a pumping installation would have reduced over-all reliability.

Fueling: The Idea May Spread

ADL engineers concluded that a gas-pressurized system would best meet the requirements. Gaseous oxygen was selected for pressurization for a number of reasons, one of which was that it was available in liquid state at launch sites.

The decision to use a gas-pressurized system for liquid oxygen transfer led to use of a comparable system to load the rocket fuel.

• **Four stage system**—Loading liquid oxygen requires four stages—cooldown, rapid loading, fine loading, and topping. Cooldown involves flooding the transfer piping with liquid oxygen to cool the system to a point where gas generation will be minimized. Gas developed during cooldown is vented. Automatic sensing devices report completion of cooldown.

The major piping is not insulated. This minimizes the amount of heat introduced into the liquid oxygen by the piping. Actually, the major piping is the lightest-weight stainless steel tubing available. The thickness of the 12-in. main transfer line is only 0.14 in. The thin pipe can be cooled down quickly with a minimum of liquid oxygen loss.

Rapid loading through the 12-in. line begins immediately after cooldown and after the rocket fuel has been loaded into the missile. The transfer pressure in the LOX storage tank is increased rapidly to 100 psi. This forces liquid oxygen into the missile in excess of 5,000 gpm. When the missile's liquid oxygen tank is 90% to 95% full, a valve in the rapid load system is closed. The fine load system continues the transfer at a slower rate. This permits the liquid surface to become reasonably quiet before the 100% level measurement is made. And it means that final valve closure occurs at a low-flow rate instead of a high-flow rate.

If the rapid load valve does not close on schedule, time is available to take corrective action. For example, if the rapid load valve were scheduled to close at the 100% level, no time would be available for a malfunction to be recognized and corrective action taken. After the liquid oxygen reaches the 100% level, the fine load valve is closed and the missile is ready to fire.

A topping system goes into operation if it is necessary to hold the missile. This replaces the LOX that vaporizes. The topping valve is controlled automatically to maintain the liquid oxygen level at 100% full. Liquid oxygen introduced during the topping period is supercooled to about −315F.

• **Equipment**—Liquid oxygen is stored in a double-walled vessel 60-ft long and 11.5 ft dia. This 26,600 gal tank is designed for 150-psi-gage pressure. The inner wall is stainless steel and the outer wall is carbon steel. The annular space between the shells, about 1 ft thick, is filled with perlite. Evaporation loss is figured at 0.25% of tank capacity per day.

Gaseous oxygen for pressuring the liquid oxygen transfer system is stored in eight cylinders of 311 cu ft capacity each. Pressure range is from 2,400 to 600 psi-gage.

Three identical valves are arranged in parallel to form the pressurizing control and provide uniform pressure for the transfer system. One valve operates with a cylinder pressure of 2,400 to 1,800 psi-gage. The second valve is automatically cut in when the pressure in the gas cylinders drops below 1,800 and the third valve is cut in when the pressure drops below 1,200 psi-gage. All three valves are automatically regulated to keep the gaseous oxygen pressure in the LOX storage tank at slightly above 100 psi-gage during the transfer operation.

The only item of equipment in the system that had not previously been used is the 12-in. rapid load valve. This unit is a stainless steel globe valve with a metal-to-metal seat. It is operated by a pneumatic piston and can be fully closed in two seconds with little or no "hammer" effect.

• **Piping design complex**—Design of piping to handle very low temperature fluids is not a simple matter. Of particular concern is the design of supports. Point contact is avoided with stainless steel sleeves normally used for support. Location of the supports must be carefully selected to permit required flexibility and to maintain stresses due to dead weight and bowing within allowable limits. Bowing is caused by temperature differential around the circumference of a partly filled line.

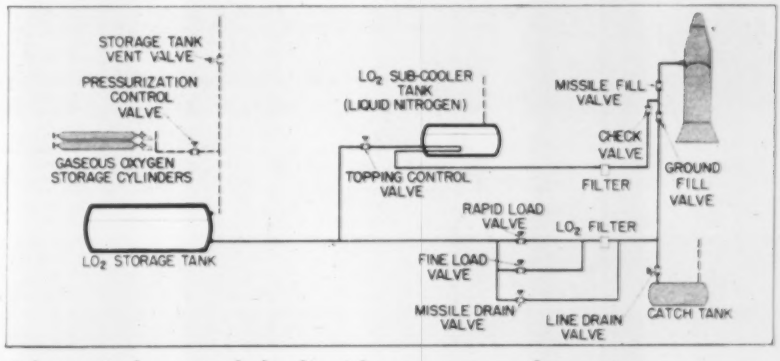
The pressurized transfer system for rocket propellant fueling of the Atlas missile is similar to the liquid oxygen system. Nitrogen is used for pressurization instead of gaseous oxygen. And only two stages are needed—rapid loading and fine loading.

There is some danger that heat of compression might cause a fuel explosion in the storage area during early stages of propellant transfer. This hazard is counteracted by using cooled gas during such initial stages.

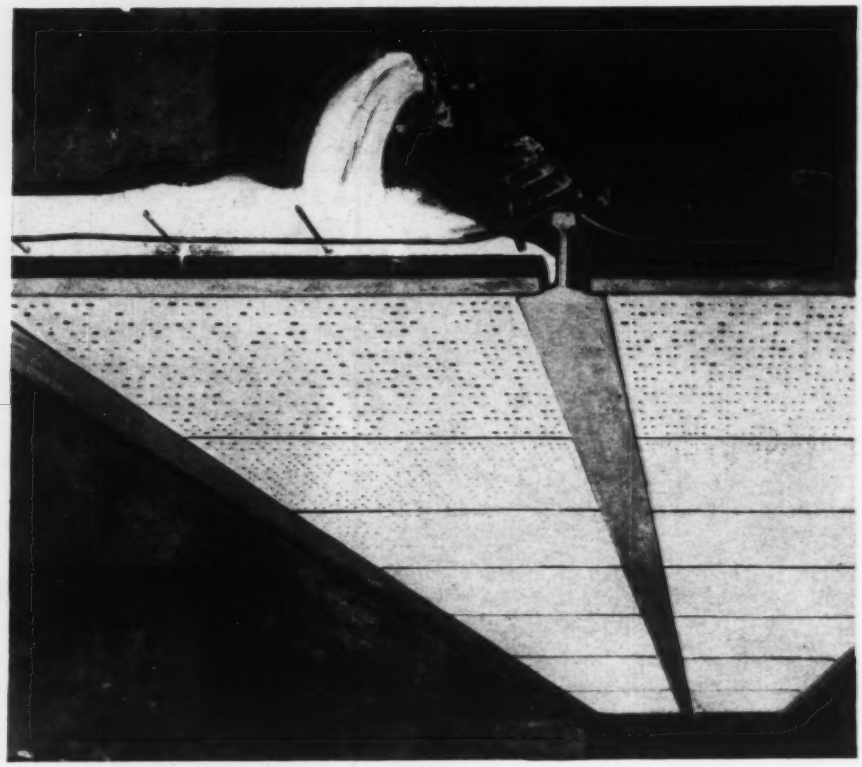
Sequencing controls of both fuel and liquid oxygen transfer are completely automated. Each stage is reported to a central control panel where a malfunction can be detected almost immediately. In such a case manual operation can be instigated.

• **Other possible applications**—Both military and commercial jet aircraft require refueling rates that are three to six times that of piston-powered planes. High-speed pumps are available for such service. But such pumps involve a high-peak energy demand. And there is a problem of static electricity buildup in the fuel that can be dangerous to personnel and equipment. Also, absolutely dry fuel is becoming important. There is some belief that many jet aircraft operational losses are caused by flameouts resulting from ice-clogged fuel filters.

An inert gas, such as nitrogen, used for pressure would serve to prevent explosions due to static electricity buildup. Slow recharging of the gas storage bottles would eliminate the peak-energy demand incurred by pumps. The pressure-transfer system could be used to maintain a gas blanket over the fuel so that once dried, it does not reabsorb moisture.



Schematic layout of the liquid oxygen transfer system.



3 things to look for in a poured roof deck:

Any soundly-designed poured-in-place roof deck should have these three essential features: (You'll find them all in Gold Bond Poured *Gypsum* Roof Decks.)

1. Allowance for temperature movement — Reinforcing wire mesh and bulb tees will allow temperature movement without disturbing the sound base for built-up roofing.

2. Resistance to uplift — When bulb tees are welded to the main purlins and embedded in the gypsum concrete, they have resisted uplift forces of up to 125 lbs. sq. ft. — 80 lbs. more than normally required.

3. Strength of a monolithic slab — When complete, a Gold Bond Poured Gypsum Deck forms a solid, steel-reinforced 2" slab of gypsum rock. It becomes an integral part of the building, adding structural strength able to resist fire, flood and hurricanes.

Look for all 3 of these features when you select a deck. A Gold Bond® Poured Gypsum Roof Deck has them all, plus the best possible fire insurance ratings. For a complete kit to help you design and specify poured gypsum decks, write Dept. EN-129.

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BUILDING PRODUCTS

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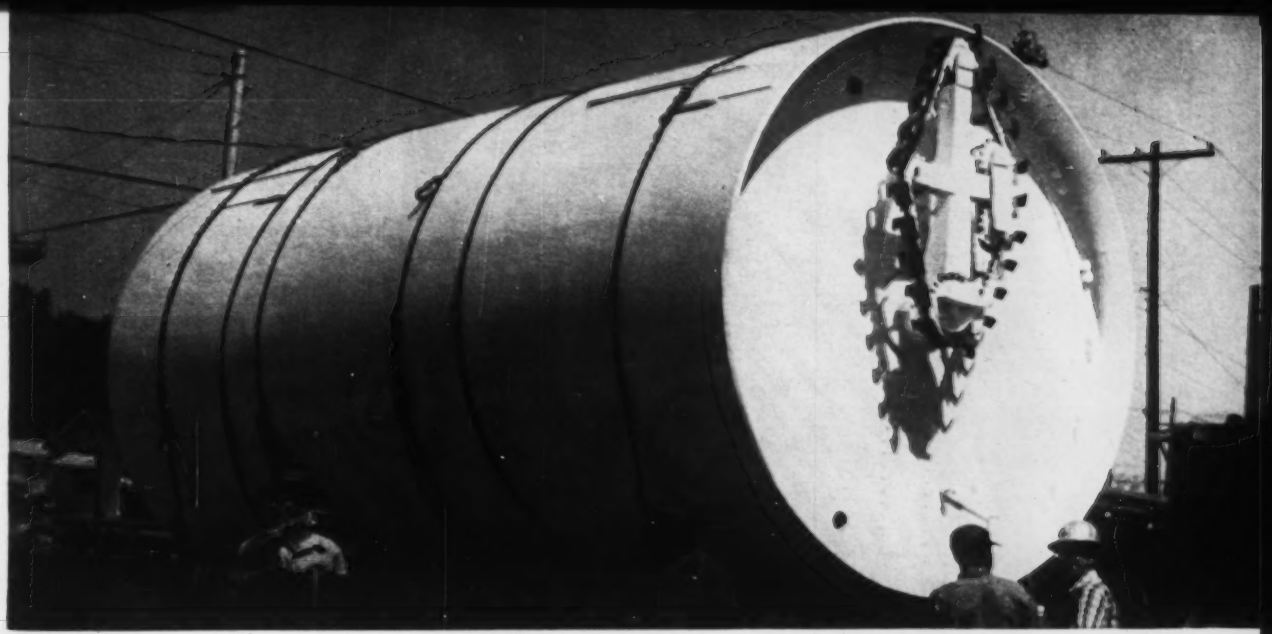


This machine eats into tunnel face with revolving toothed chain on rotating arm.

Contractor Unveils New Tunneler

A Houston contractor staked the success of a half-million-dollar job on a new untried tunneling machine early this year. He now claims the satisfaction of seeing his confidence justified.

Elmer C. Gardner took a sewer tunneling contract in Houston for $490,000, 30% under his closest competitor. He was banking on the yet-to-be-proven performance of a tunneling machine designed and built by him and his men.

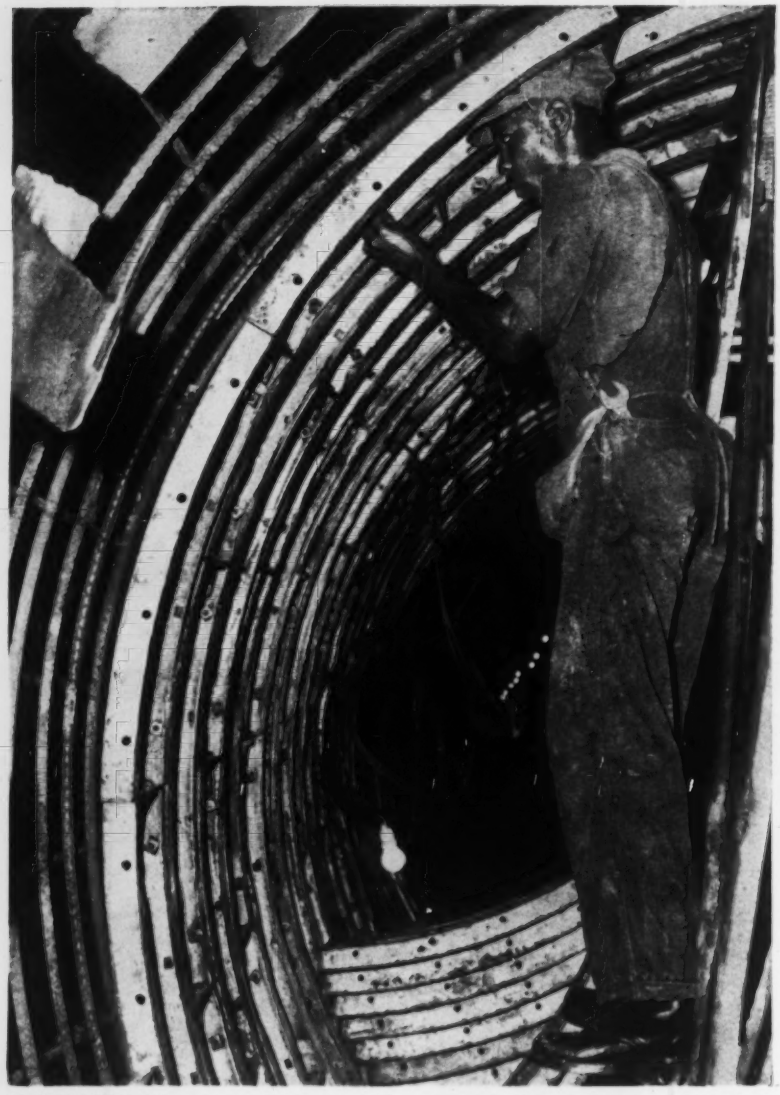
His "Teredo" has now chewed its way through several hundred feet along the route of the 3,500-ft storm drain. And it is advancing 18 to 20 ft a day, about what he expected. As the machine moves ahead, it leaves in its wake a reinforced concrete tunnel with 10-ft inside diameter and 9-in. walls.

The Teredo differs from most other recent tunneling machines in two marked respects: its cutting equipment and its mucking method. The machine bites into the tunnel face with a toothed chain adapted from a trenching machine. And it pumps the spoil out.

The soil along the tunnel route consists mostly of "joint" clay—slabs and chunks of all sizes, separated by what appear to be greased planes. Whether the machine could be adapted to operate successfully in rock is questionable. Limestone fragments caused considerable delay during the early days of this project.

The Teredo is a cylindrical shield 11½ ft in dia and 30 ft long. It is built in three sections: a nose, equipped with a cutting edge of 1-in. steel; a mid-

Through tunnel portal, concrete is pumped in, muck pumped out.



INSIDE THE TAIL of the shield, which serves as the outer form for the tunnel concrete, a workman assembles liner plates as the inside form.

section, 16 ft long, built of ¾-in. structural steel and reinforced with 2x2x⅜-in. steel-angle circumferential ribs 12 in c-c; and a tail section, 10 ft long, made of ¾-in. steel.

The nose section is steel-bulkheaded a few inches behind the leading edge. Operating in front of the bulkhead is the cutting equipment—an arm rotating like a clock hand with a tooth-studded chain revolving on sprockets about the length of the arm.

The space between the bulkhead and tunnel face is kept flooded with about five feet of water, fed in at city-main pressure through a 4-in. inlet. Cuttings drop into the water and the mixture is sucked out through the 6-in. intake pipe of a wobble-shaft pump inside the shield.

Powered by a 15-hp electric motor, the pump discharges into a 4½-in. line running back through the portal and to a disposal area 2,000 ft beyond. The contractor will continue to lengthen the muck line as the shield advances, discharging to the same area throughout the job. The pump is moving about 12,000 gal of the clay-water mixture per hour.

Replacing broken teeth took considerable time at first, when the machine was boring through rocky soil. Now the crew works five or six days sometimes without replacing a tooth.

The machine is propelled by eighteen 25-ton hydraulic jacks. After each 8 ft of advance, an 8-ft increment of the tunnel is concreted.

The rear section of the shield itself serves as an outside slip form for the concrete. A smaller cylinder of ¼-in. steel plate sections is manually assembled and locked into place inside the tail section as the inner form. The inner form also takes the jack reactions.

There are three ways of steering the shield: jacks, outside fins and cutter shaft alignment.

A shove with some of the jacks shut off can make the shield veer left or right or nose up or down.

The shield is also equipped with movable outside fins on top and bottom at the front. These can be turned like rudders to cause the machine to veer. The fins also help prevent roll.

The shield can also be steered by eccentric alignment of the cutter shaft, on which the cutting arm rotates.

Concrete is pumped in pneumatically from street level. The original concrete line was brought in through the tunnel portal. But as the tunnelers reach manhole locations, concrete equipment will be moved forward at street level and a new line will be run in through the manhole shaft.

Power for the cutting mechanism is supplied by hydraulic motors driven by electric motors inside the shield. Through concentric shafts, the rotating cutter arm is powered by a 10-hp motor and the cutting chain by a 30-hp motor.

Even with his low bid and the expectation of avoiding interference with traffic (the sewer runs beneath a street), Mr. Gardner almost failed to land the current contract. The City Council was too skeptical about his proposed tunneling method. He won their approval by promising to build the sewer by conventional methods (30-ft-deep open cut) if the new machine didn't work out.

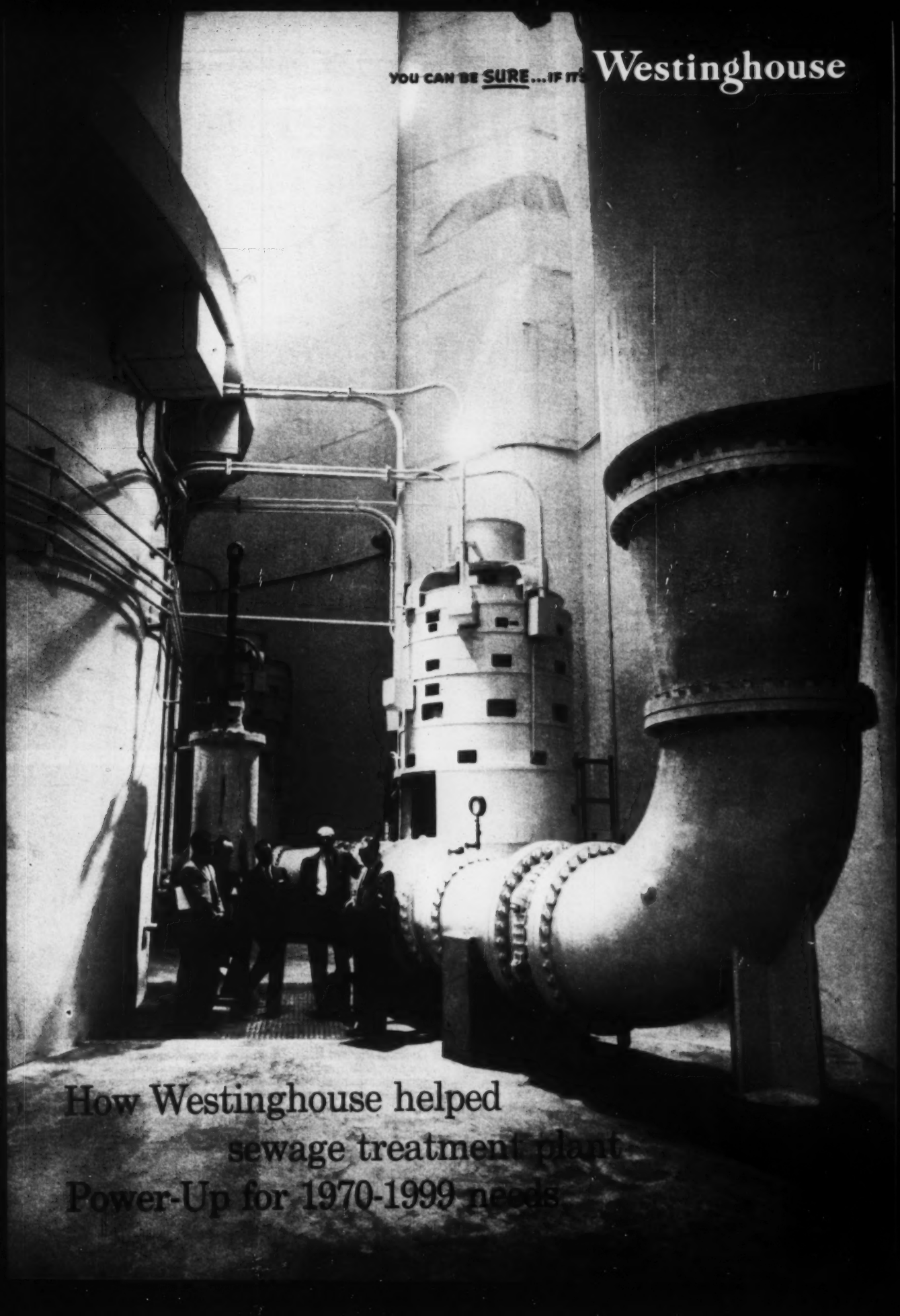
Mr. Gardner has made no arrangements on manufacturing rights for the Teredo. His Gardner Engineering Corp. will manufacture it, he says.

He has applied for patents on a number of features. But much of the apparatus consists of standard components. He says he has invested about $75,000 in the machine.

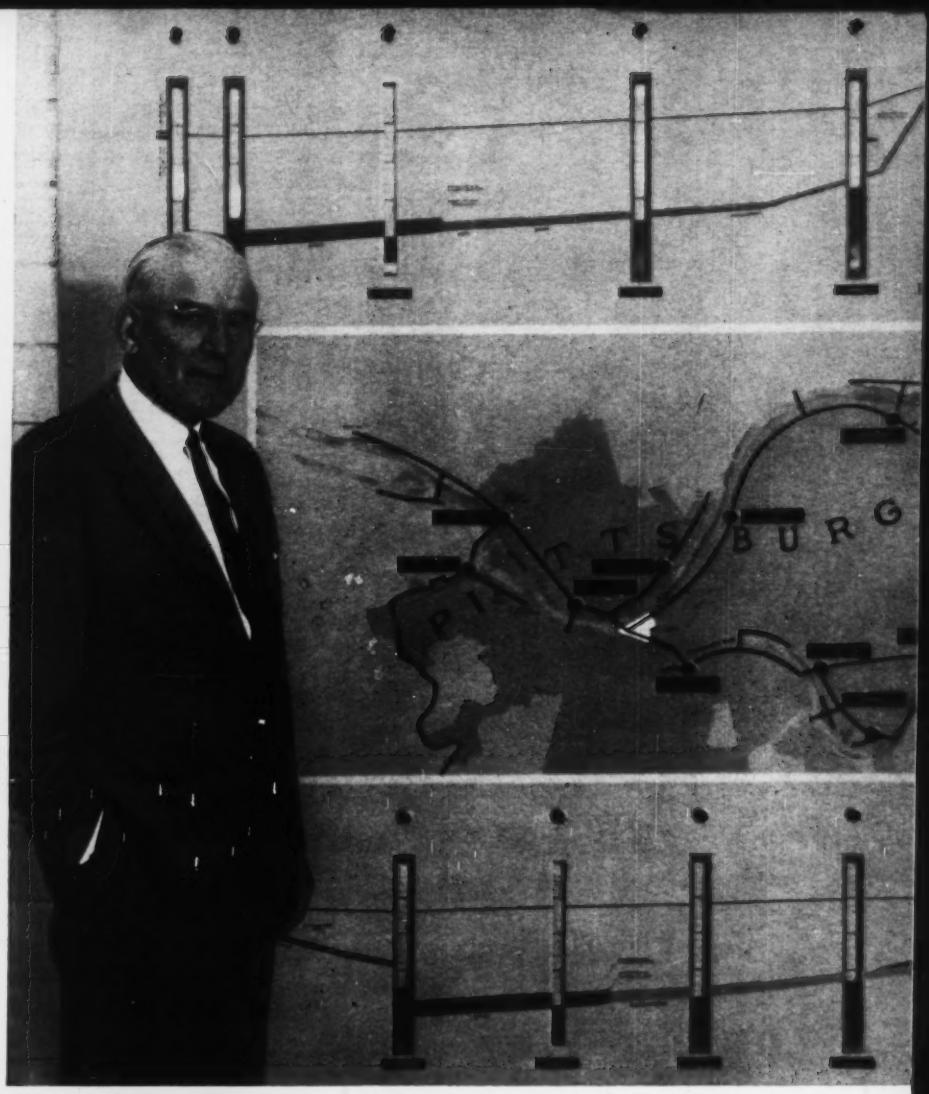
He says he expects to bid on future sewer jobs with an improved machine. He particularly wants to improve the pumping performance. Shop tests before start of the current sewer job showed that the jacks and cutters could advance the present machine 5 ft per hour, he says. But the pumping equipment can't remove the muck fast enough to sustain that rate.

The present rate of 18 to 20 ft per day is maintained by two 9-hour shifts, 10 to 12 men per shift, including concrete crews. Job superintendent Frank Fuller says he will be satisfied when the machine can make 24 ft in three 8-hour shifts.

Gardner credits four of his men with development of the Teredo: E. A. Horstketter, vice-president and design engineer; W. H. Duval, shop superintendent; Marshall Boehning, field superintendent; and Frank Fuller.


YOU CAN BE SURE...IF IT'S Westinghouse
How Westinghouse helped
sewage treatment plant
Power-Up for 1970-1999 needs

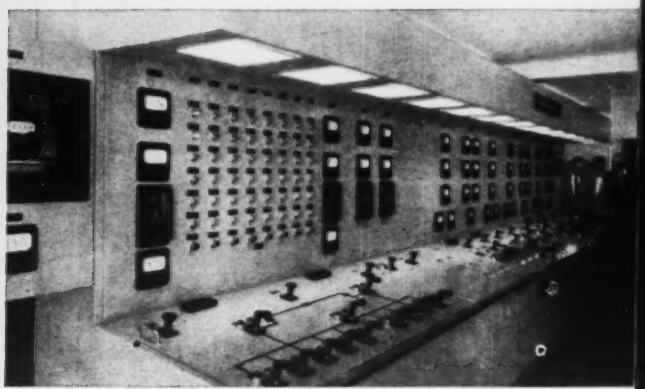
Front Cover: View in dry well of main sewage pump driven by Westinghouse 450/1250-hp 2-speed vertical synchronous motor in foreground. Constant-speed 800-hp motor in background drives its pump through a variable-speed magnetic coupling. Dry well is illuminated with Westinghouse VEK-16 floodlighting. Discussing installation are: A. B. Janaszek, Westinghouse Sales Engineer; M. B. Trimble, Westinghouse Construction Engineer; N. J. Grady, Devlin & Ernst, Electrical Contractors; J. F. Laboon, Executive Director and Chief Engineer, Allegheny County Sanitary Authority; A. A. Thomas, Engineer for Operations, Metcalf & Eddy, Consulting Engineers.



J. F. Laboon, Executive Director and Chief Engineer of Allegheny County Sanitary Authority, shown beside system flow panel of the $100 million trunk sewer and treatment plant project which serves 70 separate communities. The mimic diagram depicts flow conditions throughout a 69-mile network of tunneled interception sewers. The plant and its operation incorporate the process of concentrating undigested sludge for incineration.

J-94134-2

Examining sewage treatment system plans in the director's office are N. J. Grady, M. B. Trimble, A. B. Janaszek, J. F. Laboon and A. A. Thomas.



Over-all view of the main duplex control board installed in the sewage pump station. This board centralizes control of the incoming power feeders, indicates alarm conditions for each main sewage pump and also provides centralized control of pump motor speeds and performance. Shown at far end of control board are A. A. Thomas, A. B. Janaszek, J. F. Laboon and N. J. Grady.

Pittsburgh Sewage Treatment Plant builds for population growth of next 40 years

Planning by the Allegheny County Sanitary Authority went far beyond today's needs to anticipate the requirements of 1970 and beyond, to the year 2000. The new Pittsburgh Sewage Treatment Plant which serves the combined populations of 70 separate communities is now capable of handling the increased demands of 1970 populations. In addition, those structures and conduits which are not readily expandable are designed for the ultimate flow demands of the year 2000.

The Westinghouse electrical distribution system specified was planned with the same anticipation of future needs. Each component was selected to perform as part of the completely coordinated system. The entire system is capable of ready expansion to meet the increased power requirements of the future operating load of the plant.

Westinghouse electrical equipment supplied to Power-Up this 150-mgd sewage treatment project (max. rate, 300 mgd) includes:

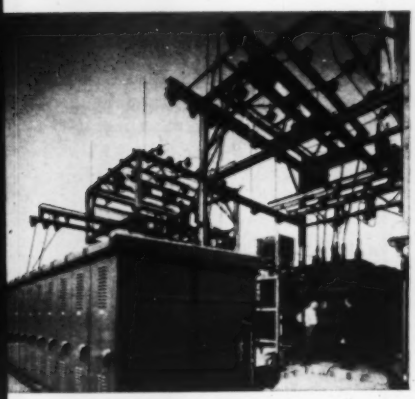
- 10,000-kva outdoor substation.
- Main pump control board.
- Three main sewage pump motors (vertical, synchronous), 1250/450 hp, two speed, two frame.
- Two main sewage pump motors (vertical, synchronous), 800 hp, 400 rpm.
- Two major assemblies of high-voltage fused starters and metal-clad switchgear.
- Five indoor dry-type power centers (150 to 3000 kva).
- Seventeen motor control centers as well as panelboards, dry-type transformers and standard controls.
- Westinghouse Life-Line® motors and gear drives which are utilized on pump, conveyor and auxiliary drives.

(contd.)

YOU CAN BE **SURE**... IF IT'S

Westinghouse

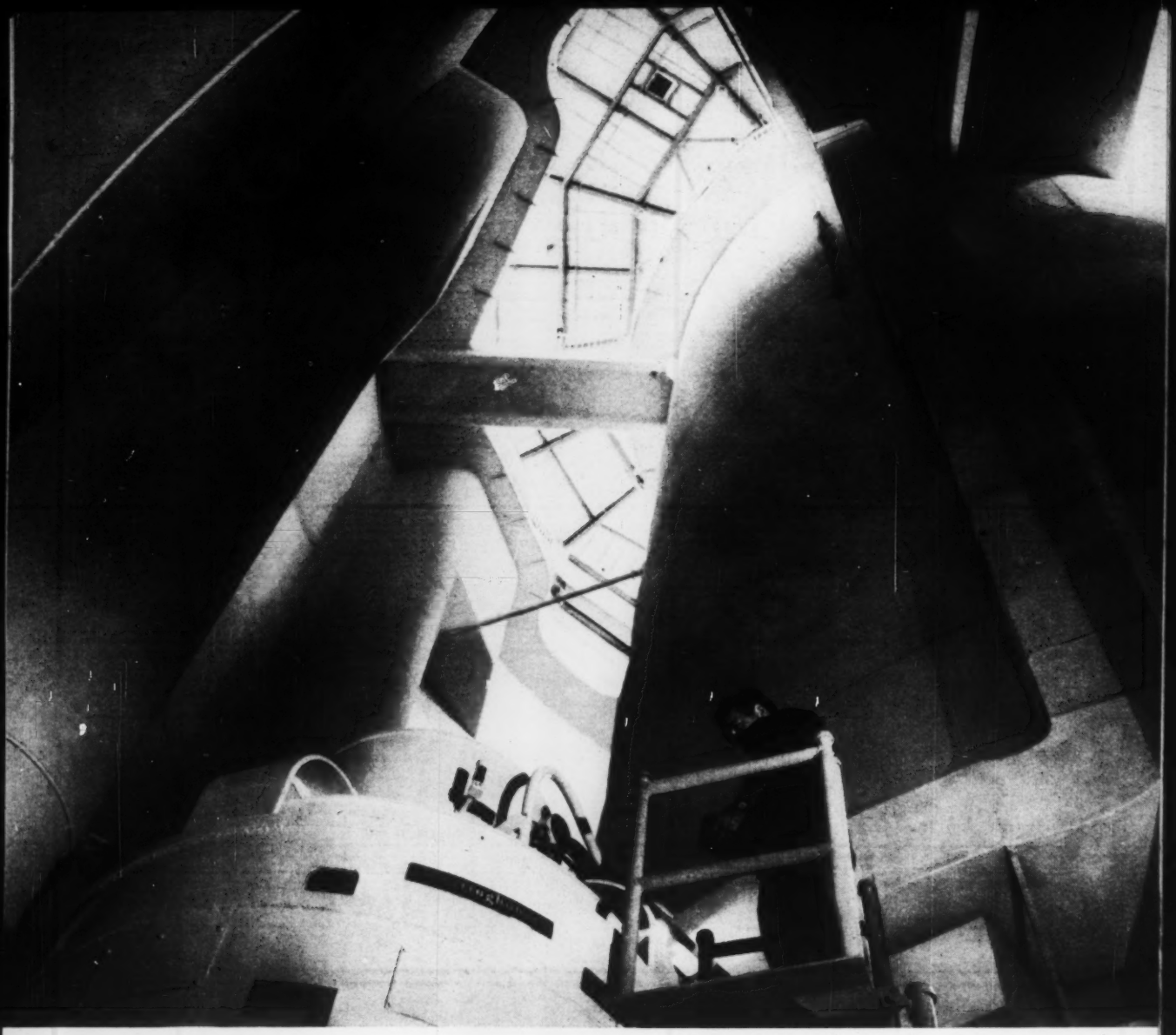
J-94134-3



General view of outdoor substation at Pittsburgh Sewage Treatment Plant. Shown is Westinghouse metal-clad switchgear used for incoming line, bus-tie and distribution service, as well as one of the 5000-kva oil-insulated power transformers at the station. Also shown are Westinghouse disconnect switches, grounding resistors and outdoor substation structure. M. G. Grasha, Plant Electrical Engineer, discusses installation with M. B. Trimble.

A. A. Thomas, J. F. Laboon, N. J. Grady and A. B. Janaszek shown in main control room with line-up of Westinghouse Ampgard* fuse starters for control of the main sewage pumping motors. Metal-clad switchgear in the middle of the assembly provides incoming line protection for each starter group. *Trade-Mark

M. B. Trimble and M. G. Grasha inspect electrical equipment in administration building basement. At right is rear of motor control center close-coupled to 150-kva dry-type power center transformer; at left is a 75-kva Type DT-3 dry-type transformer feeding a Westinghouse NLAB lighting panelboard.



General view of main pump station looking from the bottom of the dry well up to the main operating floor level 120 feet above.

Sewage plant builds for next 40 years (contd.)

Powering-Up electrically for future growth provides many initial and future savings in public works projects. For information as to what such savings can mean to you, call the Westinghouse electrical construction engineer nearest you, or write: Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania. J-94134-4

OWNER: Allegheny County Sanitary Authority
CONSULTING ENGINEERS: Metcalf & Eddy, Boston, Mass.
CONSULTING ARCHITECTS: Celli-Flynn, McKeesport, Pa.
ELECTRICAL CONTRACTORS: Devlin & Ernst, Pittsburgh, Pa.

Over-all view of Pittsburgh Sewage Treatment Plant. In foreground are the main sedimentation tanks and the effluent channel which discharges into the Ohio River. Circular building at far right is main pump station, behind which is the incinerator building with 300-ft-high stack, a landmark of the installation.

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WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS" CBS TV FRIDAYS

How Red China Plans a Commune

To take what it calls "The Big Leap Forward," the Communist government of China is transforming the country into a vast labor camp. At the heart of the big economic push is the system of communes—new villages to house workers in the center of areas designated for communal farming.

The commune system—controversial even within the Communist bloc—amounts to the broadest application of community planning ever attempted.

No longer is the family the basic element in Chinese life. Gone is the individual small-holding and cottage industry. Communal feeding, nursery schools, kindergartens, barracks-like living quarters and "happy homes" for the aged are the rule.

Commune planning is generally carried out by municipal or university architectural and city planning groups working with hygiene and medical teams. Typical of their work, and similar to other projects throughout China, is a new "people's commune" near Shanghai.

The new village will be a residential point and "production battalion" headquarters in a vegetable and melon growing region that now supports about 700 families. The scattered households of the area will be concentrated in the commune and organized into seven "production teams," serviced by a central tractor repair depot and workshop.

Each production team—500 to 600 persons—will be housed in lines of two-story buildings around a square. The basic living unit is two rooms and a small store room for coal briquettes, used for heating. There are no kitchens, all meals will be taken in the mess hall.

To save scarce material, especially lumber, planners specify brick walls laid with alternating flat courses running through the wall topped by bricks on edge at inner and outer faces with a hollow space between for insulation.

The floor of the downstairs bedroom will be brick; in the living room and store, solidified earth. First floors will be of timber boards on joints.

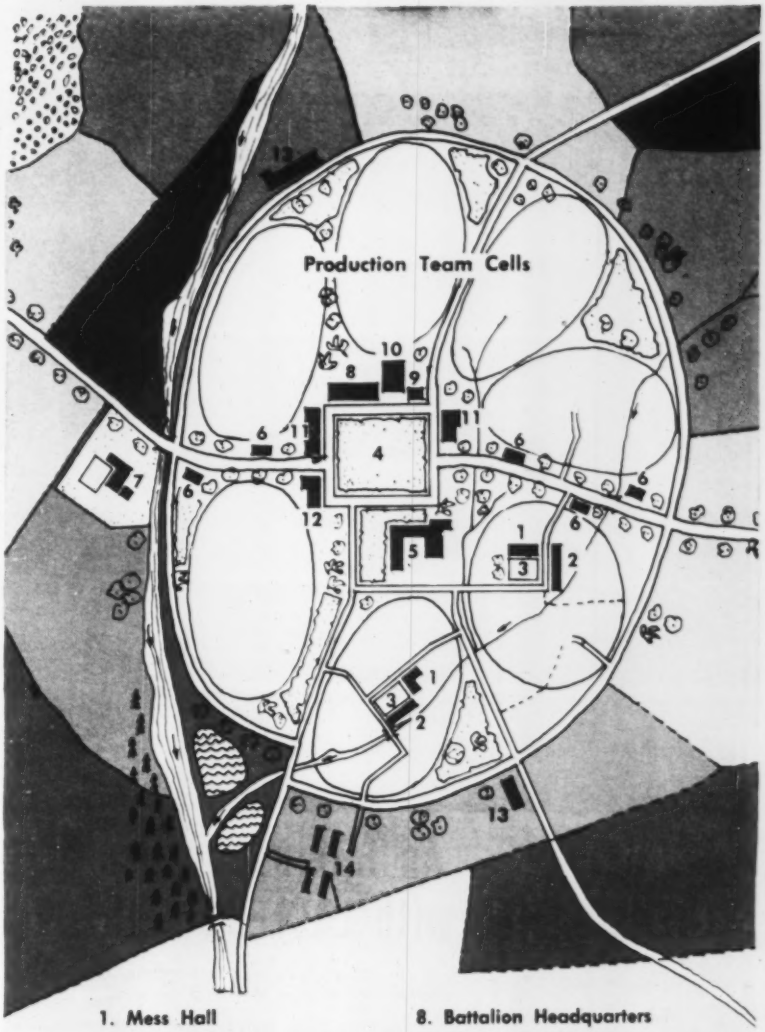
Roofs of timber rafters and flat tiles, will be pitched at 30 deg. Eaves will project 12 in. Straw mats will be laid between the rafters and plastered.

Basic layout for this commune, with its seven production teams, is a rough circle (see sketch).

In the center is an athletic ground large enough to take the assembly of the entire commune. The primary school will be located on a lawn near the athletic ground.

A road will form the perimeter of the circle. Another road—a trunk line—will bisect the circle, providing access to the athletic ground.

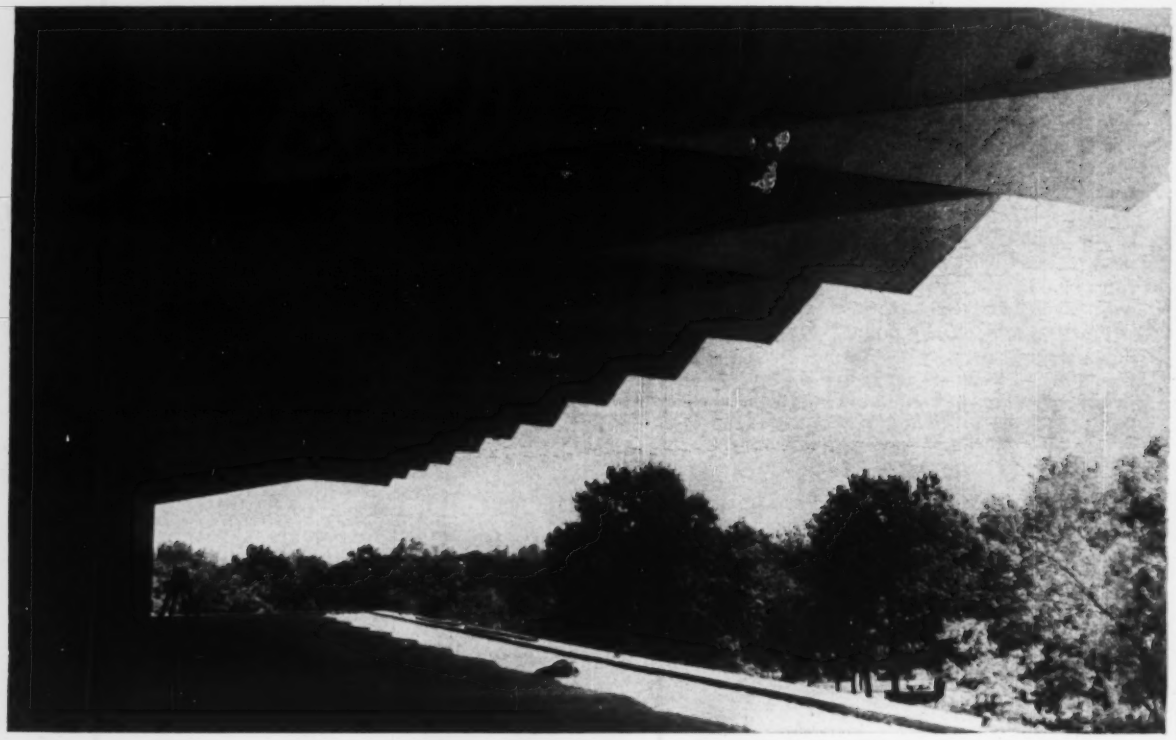
The commune's main public buildings will be located along the trunk road and around the athletic ground. These buildings include the headquarters, which will contain a club room and a small theatre; a commercial unit, housing the market center, bank, post office and barber shop; a medical clinic; public bathhouse; and tailoring shop.



STEINBERG MEMORIAL

Hall of Art and Archaeology
Washington University, St. Louis

General Contractor: G. L. Tarlton Contracting Co.
Architect: Russell, Mullgardt,
Schwartz and Van Hoefen
Structural Engineers: Eason, Thompson Associates



An Interesting use of Concrete... STRENGTHENED with LACLEDE REINFORCING STEELS

In today's bold new architecture, concrete has become a medium of artistic expression, rather than a mere structural material.

This dramatic building by Russell, Mullgardt, Schwartz and Van Hoefen is a superb example. Intersecting concrete planes form an interesting pattern of shades and shadows against the severe vertical lines of the limestone walls.

Notice the 20-foot overhang in the photograph. Design like this would be impossible without the inherent strength of concrete, reinforced with specially designed high-strength steels.

In Steinberg Memorial, this strength is provided by Laclede reinforcing steels.

Laclede reinforcement is finding its way into more and more concrete structures these days—buildings, highways, bridges, grain elevators and many others. It's the ideal material for providing the strength needed for durability and long-lasting service.

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New Approach to Hydro Analysis

There is every reason to expect that digital computers will shortly play an important role in hydroelectric system analysis. Package solutions of the problems of water hammer, surge-tank effects, speed regulation, and governing stability may soon be obtained in a few hours of machine-computation time for individual hydroelectric installations of the type shown in the sketch.

The basic idea of the new approach is to have a digital computer solve simultaneously all the equations pertinent to a given hydroelectric installation short-time-step by short-time-step (0.01 second per step, more or less) to obtain the best possible answers that present physical knowledge will permit.

One total solution for any given variation of electrical load with time would yield time-histories of many resulting effects throughout the system: water pressures and velocities at pre-selected points in the conduit and penstock; surge-tank elevations; turbine power output; discharge and head; turbine and generator speed; and other quantities.

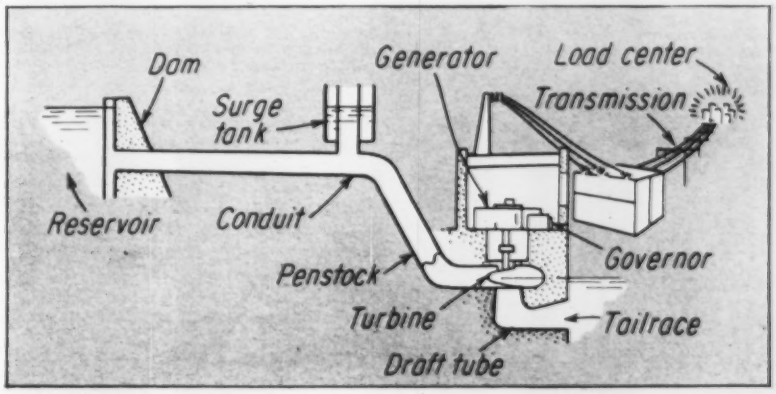
By varying from one computer run to another important factors such as surge-tank size, machine inertia, and governor characteristics; noting relative effects; and making as many runs as necessary; it would be possible to determine optimums for design and operation. Speculation would then be reduced to a practical minimum. The result, at least in the long run, would be savings in construction and equipment costs, engineering analysis and manpower.

It is the limitations in current methods of analysis that pose the need for a more comprehensive approach to hydro problems.

The pioneer studies of, and methods developed by, Allievi, Thoma, and others have been and still are invaluable, particularly for preliminary designs. A number of ingenious short cuts, including graphical analyses, have been devised for the solution of water hammer and surge problems, but not without simplification of one sort or another. Normally in the final steps of design, time-consuming arithmetic methods of integration are utilized, but here again approximations of one sort or another are still necessary to render the problems tractable for manual solution. Recent computer studies also are based upon simplifying assumptions.

The technical details of obtaining comprehensive computer solutions using the new approach have been proposed by the writer and accepted by the Corps of Engineers as a basis for development of IBM 704 machine-computational programs. These programs have been under development since June by the Massachusetts Institute of Technology under contract with the Missouri River Division of the Corps of Engineers. This work will require about two years to complete.

Machine programs will be developed for the Oahe and Garrison power plant systems on the Missouri River and, possibly, for one other system, as yet undesignated.



HYDRO SYSTEM is a unified problem for a computer. When variations are introduced at any point, effects throughout the system can be determined quickly.

By Nicholas L. Barbarossa, *Chief, Hydraulics Section, Missouri River Division, U. S. Army Engineers. Except for a teaching stint at the University of Minnesota in 1951-52, Mr. Barbarossa has been involved in Missouri Basin civil works developments as a hydraulics engineer since World War II.*

What Underground A-Blasts Did

More than a year after the most recent of five underground atomic blasts in Nevada, half the heat generated by the explosions remains in the ground.

All five tests were set off in volcanic tuff at a site adjacent to Yucca Flats—the first two in plugged vertical bore holes of large diameter; the last three in underground chambers reached by horizontal adits of different lengths and plugged with sandbagged barriers.

The access adits were collapsed for lengths up to 870 ft from the blast. The explosion fragmented surrounding rock into fine breccia in a roughly ellipsoidal space extending, in the largest explosion, 80 ft below the center of the blast.

At distances up to 1,100 ft from the blast, the solid rock outside the brecciated mass was moved radially as much as one foot. In the biggest explosion, there was a 5-ft fault movement at ground surface.

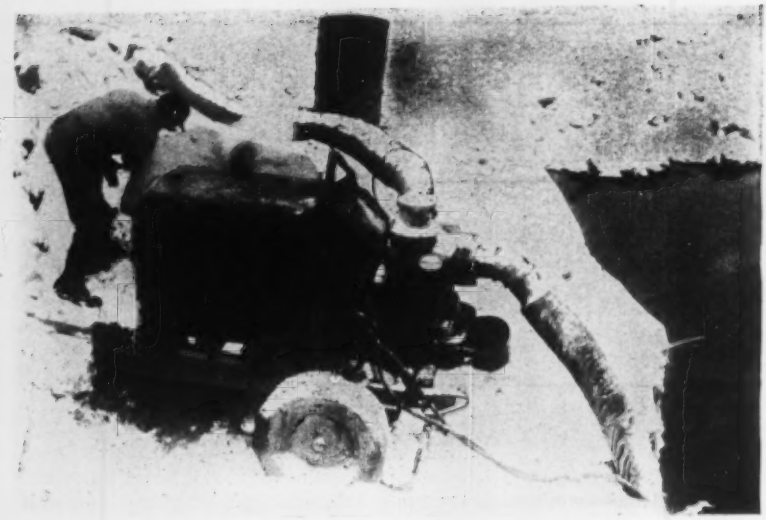
In many cases, flow of underground water stopped. This is attributed either to sealing of joints in the tuff (through which water had previously flowed), or to diversion of groundwater into newly opened joints below the point of the explosion.

The effect of the blasts on local geology was a leading topic of the engineering geology section at the 72nd annual meeting of the Geological Society of America, held in Pittsburgh recently. The studies made by the U. S. Geological Survey's Engineering Geology branch were presented to the Society by Edwin B. Eckel, chief of the branch.

New chairman of the Society's engineering geology division is Stafford G. Happ, geologist with the Atomic Energy Commission at Grand Junction, Colo. He succeeds Robert F. Legget of Ottawa.

(Research continued p. 52)

DOUBLE-DUTY · TRIPLE-TOUGH



Quaker Thermoid

WATER-SUCTION HOSE

Whether you feed it light-duty or heavy-duty work, Thermoid-Quaker water-suction hose gives you long, champion-like service. It's sturdy enough to withstand full vacuum and direct connection to centrifugal and piston pumps. Yet it's light and flexible . . . well-muscled but manageable.

The toughness comes in three layers. First, a black, natural-rubber tube that resists mild acids and alkaline water . . . abrasive sand and grit. Second, a strong, durable carcass of heavy cotton cord interwoven with heavy-gauge, copper-coated spiral steel wire. Third, a black natural-rubber cover that stands up under the hardest knocks . . . combats abrasion, sunlight, and rough weather.

Ask your Thermoid distributor about Thermoid-Quaker water-suction hose (1½" to 4" ID, 50-foot maximum lengths). Or write to *Thermoid Division, H. K. Porter Company, Inc., Tacony & Comly Streets, Philadelphia 24, Pa.*

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PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Specialty Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION, H. K. PORTER COMPANY de MEXICO, S. A.; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.

Army's Lift Crane Takes To the Air Like a Bird

A crane that can be carried by air and dropped by parachute and is capable of lifting more than its own weight has been developed by the Army Corps of Engineers and the crane-shovel industry.

The airborne crane weighs only 16,000 lb, but it has lifted more than 18,000 in tests. It can be towed at convoy speeds and has a self-propelled speed of 8 mph. It can be converted to a ⅜ cu yd clamshell, dragline or shovel front operation.

The crane is equipped with a folding gantry and a three-piece boom. The boom sections are light enough to be handled by two men without the use of auxiliary equipment. With the boom removed the total length of the machine is 17 ft. Aluminum was used for the crane cab, gear cases, outrigger beams and outrigger pads to reduce weight.

Development work on the crane was done at the Engineer Research and Development Laboratories, Fort Belvoir, Va.

AEC Lets R&D Contract For Pea-Sized A-Fuel

Pea-sized fuel pellets in a cylinder of liquid may form tomorrow's simplified nuclear reactor.

The Atomic Energy Commission has let an $838,163 development contract to Martin Co., Baltimore, for work on what's called a liquid fluidized bed reactor.

This type of reactor reduces costs considerably by eliminating expensive control rod components and making material recovery easier.

Here's how it works:

The reactor core will be a large, upright cylinder. The uranium fuel will be formed in pellets heaped on a perforated platform at the bottom of the chamber and immersed in liquid.

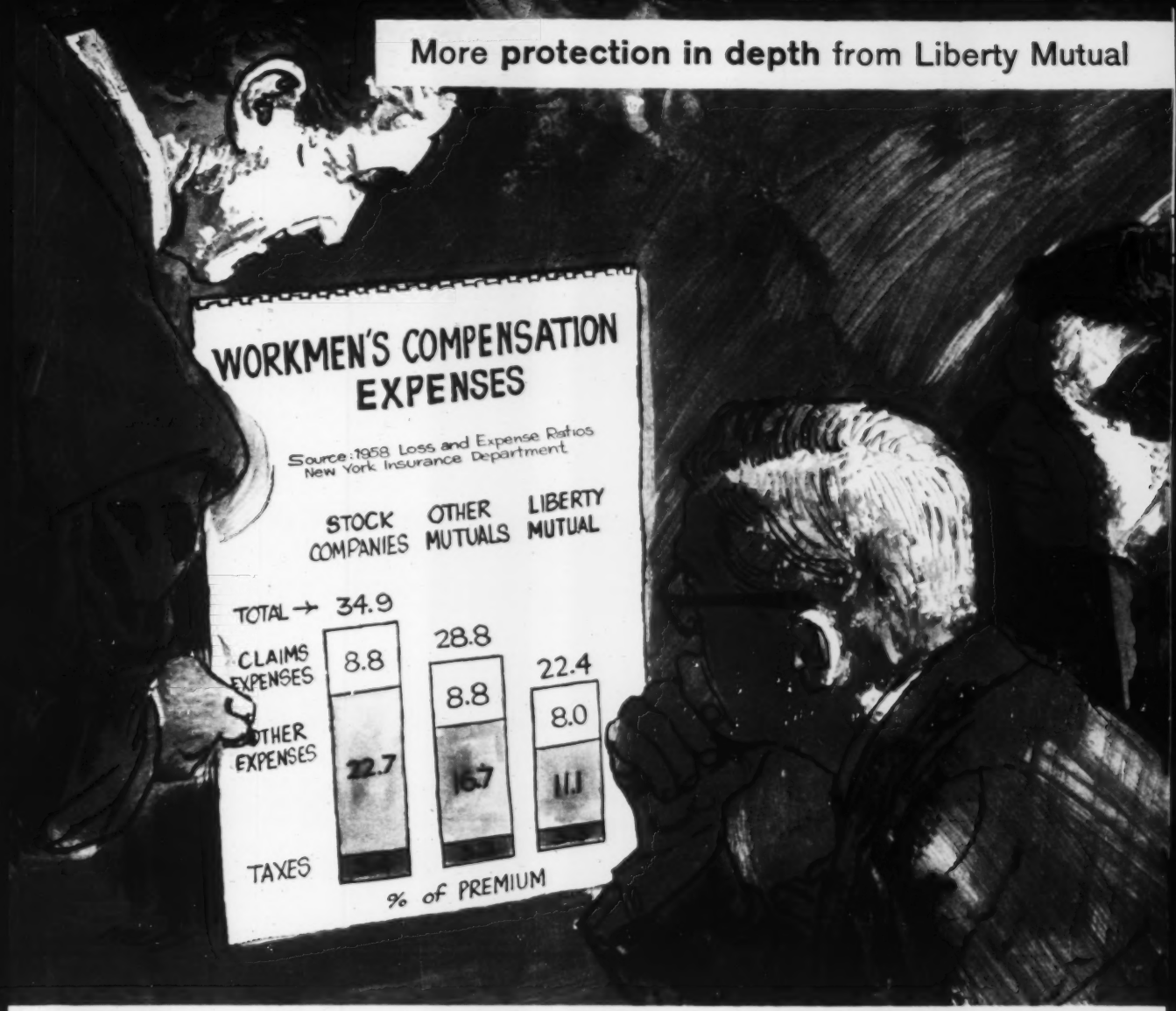
A power-producing chain reaction can take place in such a system only when the fuel pellets are a certain distance apart.

When more liquid is pumped up through the bottom of the chamber, the pellets rise and separate slightly to produce a reaction.

Water will be used in the test reactor. The atomic reaction will heat the water, producing steam to drive a generator turbine.

Any decrease in flow rate through the core will make the pellets drop back into a pile at the bottom of the core, ending the reaction and cutting off power output.

More **protection in depth** from Liberty Mutual



Why your insurance costs go down when Liberty Mutual handles your workmen's compensation

The price you pay for workmen's compensation insurance hinges directly on the cost of accidents and losses and your insurance company's cost of doing business.

Through protection in depth Liberty Mutual not only helps you prevent accidents, but lessens their impact when they occur. Added to this forward-looking concept of loss control is Liberty's outstanding record for keeping operating expenses at a minimum. Year in, year out, these expenses are lower than the average for all companies (as shown by 1958 Loss and Expense Ratios — New York Insurance Department).

Important? Last year alone Liberty's workmen's compensation policyholders received $22,900,000 in savings — $4.8 million under retrospective rating plans and $18.1 million in dividends. We have also helped many policyholders earn experience rating credits which will reduce their future premiums. Liberty Mutual policyholders enjoy premium discounts allowed under rating plans in the amount of a little more than $3 million.

Such savings have helped make Liberty Mutual the leading writer of workmen's compensation insurance every year since 1936.

Want to see your compensation costs go down? Write or phone your nearest Liberty Mutual office. There are 146 of them located all across the country.

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Business Insurance: Workmen's Compensation, Liability, Group Accident and Health, Fire, Fleet and Crime
Personal Insurance: Automobile, Fire, Inland Marine, Burglary, Homeowners

New Remington Model EV-26 CONCRETE VIBRATOR

Now the world's most reliable, simplest-to-use motor-in-head vibrator and only 2⅝" in diameter

Remington research tackled the problem of developing a truly dependable electric motor-in-head concrete vibrator. After months of development and testing, Remington announces the Model EV-26 with exceptional reliability and capacity for fast work in walls, floors, footings and beams. Plug the new Remington Model EV-26 into any 110-volt line. The powerful motor kicks over at 10,000 vpm. The positive, 2-button switch is waterproof and located conveniently near the operator's hand, while a special thermal overload switch protects against motor burnouts on both AC and DC current. The new Model EV-26 is simple to use in one-man operation and comes in 7′, 14′ or 21′ hose lengths with 25′ of special heavy-duty cord. It's economical to use because second operator isn't necessary to reposition power source to accommodate limited flexible shaft lengths. Mail coupon for complete specifications on the new Model EV-26 and the complete line of Remington concrete vibrators.

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Remington Arms Company, Inc., Bridgeport 2, Conn.

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1. Heavy-duty, 6-ply hose with anti-slip finish for safe, easy handling. 3-wire cord is anchored inside . . . won't come loose.

2. Welded commutator leads on motor give extra protection during sudden overloads. Thermal overload protection switch works on AC or DC . . . automatically resets.

3. Heavy-duty, precision ball and roller bearings on motor, shaft and tip keep internal friction down, stand up to heavy vibration loads.

4. Special Remington eccentric throws out 10,000 vpm with an extra-strong kick.

5. Carburized, alloy-steel head with welded tip for long service. Head diameter less than 2⅝" for work in tight spots.

Carries a six-month guarantee.

FREE POWER-TOOL CATALOGS

Remington Arms Company, Inc., Bridgeport 2, Conn.

Please send—without obligation—catalogs on Remington Contractor & Industrial Tools check below:

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☐ **Chain Saws** ☐ **Stud Drivers.**

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*Company*_____
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*City*_____ *Zone*____ *State*_____

Quake Machine May Help In Designing Structures

An earthquake machine has been assembled by California Institute of Technology engineers, who hope to gather 'quake design data by shaking some buildings (ENR Nov. 12, p. 19).

George W. Housener and Donald E. Hudson are conducting the research project under sponsorship of the Earthquake Engineering Research Institute in a contract with the California State Department of Architecture.

Objective of the program is assembling information from controlled "earthquakes" that will provide practical and economical designs for building dams and bridges.

CSDA's primary interest for the present is in school design. But because of wide demand for practical information on the subject, in general, engineers from Japan, India, Argentina and Chile are participating in the project.

The machine is small but will produce a wallop. Stripped down, it weighs only 500 lb including its 1½-hp motor.

The machine does its job by counter-rotating two 20-in. "swing boxes" carrying unbalanced loads of lead weights in a horizontal plane. The boxes will take up to 400 lb of weights each. They rotate between two triangular steel plates that form the machine's frame. The whole thing bolts to the building floor.

Varying the amount of weights and the rpm—from 4 to 500—produces 'quakes of varying magnitude and with a variety of results.

Anchoring two machines at opposite corners of a floor and running them in opposite directions produces tortional twist effects. And by tuning the machine to a structure's natural frequency, the engineers can create a considerable amount of damage with very little energy expended.

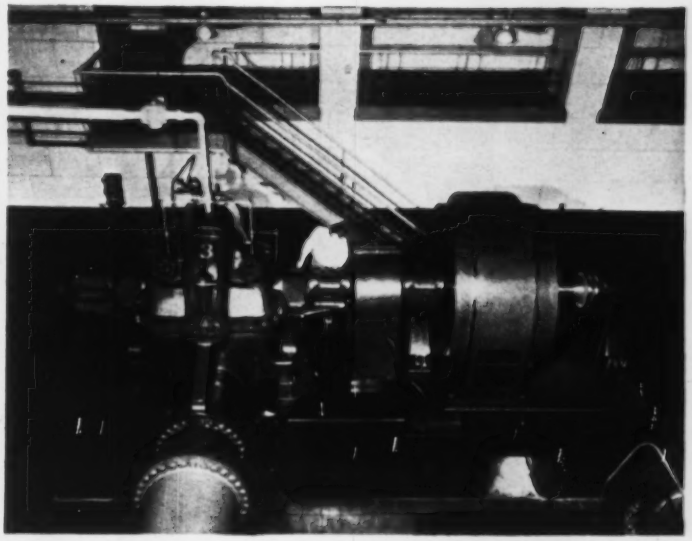
"The complexity of a building makes a mathematical analysis impractical," Mr. Hudson points out.

Dynamic properties of a building change as a real earthquake builds up. "You don't learn everything you want just by shaking a building a bit. You must crack it," he says.

Mr. Hudson feels that experiments with model buildings don't give accurate results. Miniature joints tend to be stronger than full-scale ones, he feels, and will distort test results.

Prof. Dino Morelli designed the machine; Prof. Thomas K. Caughey worked out the electric drive design. The research group plans to build four of them.

A case for F-M Split-Case Centrifugals!



Typical installation in Toledo averages 80.314% wire-to-water efficiency for year!

Exceptionally high and dependable efficiency with steady, low-cost operation year after year—that's the report from a host of municipalities and industries using Fairbanks-Morse pumps in their pumping stations.

Why? Ask stations like Collins Park High Service in Toledo, O., where five Fairbanks-Morse 36-in. Split-Case Centrifugal Pumps have been giving superb performance for 17 years. The No. 3 pump in the photo pumped 6,065,590,000 gallons in one year alone, handling 26.13 percent of the plant total, and consuming just 3.55 kilowatts hours per million foot gallons!

Your Fairbanks-Morse Field Engineer welcomes you to inspect many other reports like this from his files—reports revealing why no other manufacturer can match the experience of Fairbanks-Morse in providing pumps and drivers for both municipality and industry. Your F-M Field Engineer will be glad to work with your own engineers in selecting the best equipment for your specific requirements. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

See Sweet's Product Design Catalog File for complete F-M Pump Line.

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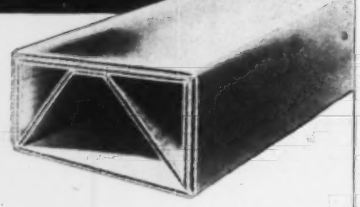
JAY-VOIDS

America's Only Asphalt Impregnated Corrugated Forms

PREVENT CRACKED SLABS



JAY-VOIDS offer builders a more positive void than now available through conventional methods. These TESTED and PROVED forms help prevent cracked slabs by providing space underneath the slab for movement of the earth.

JAY-VOIDS lightweight, simple one-piece form folds easily for fast assembly and placement . . . are shipped and stored flat.

JAY-VOIDS are made of patented FREEZURBOARD . . . the heavy-duty asphalt and wax impregnated corrugated board . . . assures top quality and greatest strength under adverse weather conditions. (Not to be compared with ordinary corrugated board.)

JAY-VOIDS are your cheapest insurance against cracked slabs. They save you money and assure top quality concrete construction.

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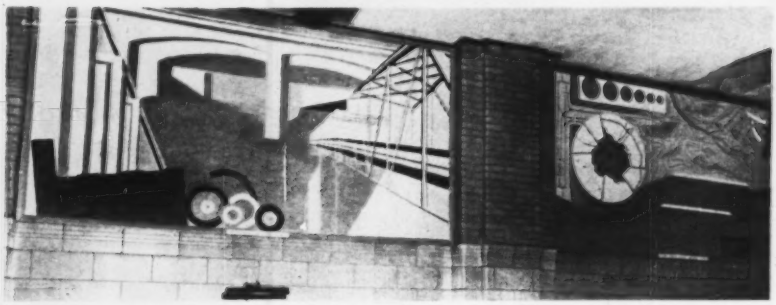
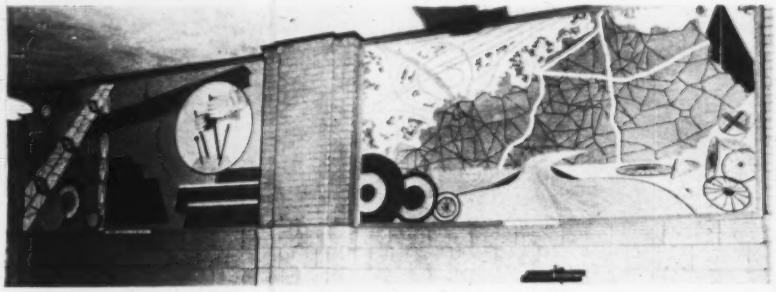


Vivid Murals Portray Phases . . .



. . .Of Kentucky Highway Program

Colorful murals in the New State Office Building, Frankfort, Ky., depict the various phases of the record-breaking road construction program of the Kentucky Department of Highways.

Old and new bridges, the piers of a modern span with sheet-steel piles in front, the overpass of a modern expressway and an old steel bridge make up the mural at top, left.

Road design and materials testing are the subject of the painting at top right.

Highway machinery is the theme of the mural at bottom left. Kentucky's primary road system, with its 650-mile portion of the Interstate Highway System in bold white lines, is pictured at bottom right. The development of the wheel is described in the lower corners of the mural.

Muralist John St. John was commissioned to do the paintings.

Pipe-Lining Method Improved

Water pipes can be lined with a rust-preventing layer of limestone in two hours without taking them out of service, according to a Michigan State University professor of civil engineering.

Professor Robert F. McCauley is experimenting with a chemical-additive method known to some extent for years, but he says he has discovered a new factor of importance—rate of flow. He adjusts water velocity to 6 ft per sec.

The chemicals are metaphosphate and one or more of the following, depending on amounts naturally present in the water: lime, soda ash, caustic soda and calcium chloride. Professor McCauley claims to have found the precise amounts needed to do the most effective job. "The coating is hard, even and fine," he says.

"The chemicals are harmless in the amounts used," says Professor McCauley. "However, the treated water is slightly distasteful."

He suggests that objections to the taste might be minimized by applying the chemicals during a low demand period and maintaining the required velocity of flow by opening hydrants in the system.

The initial coating can be improved by subsequent addition of small amounts of the chemicals, Professor McCauley says. Users would not notice these, he states.

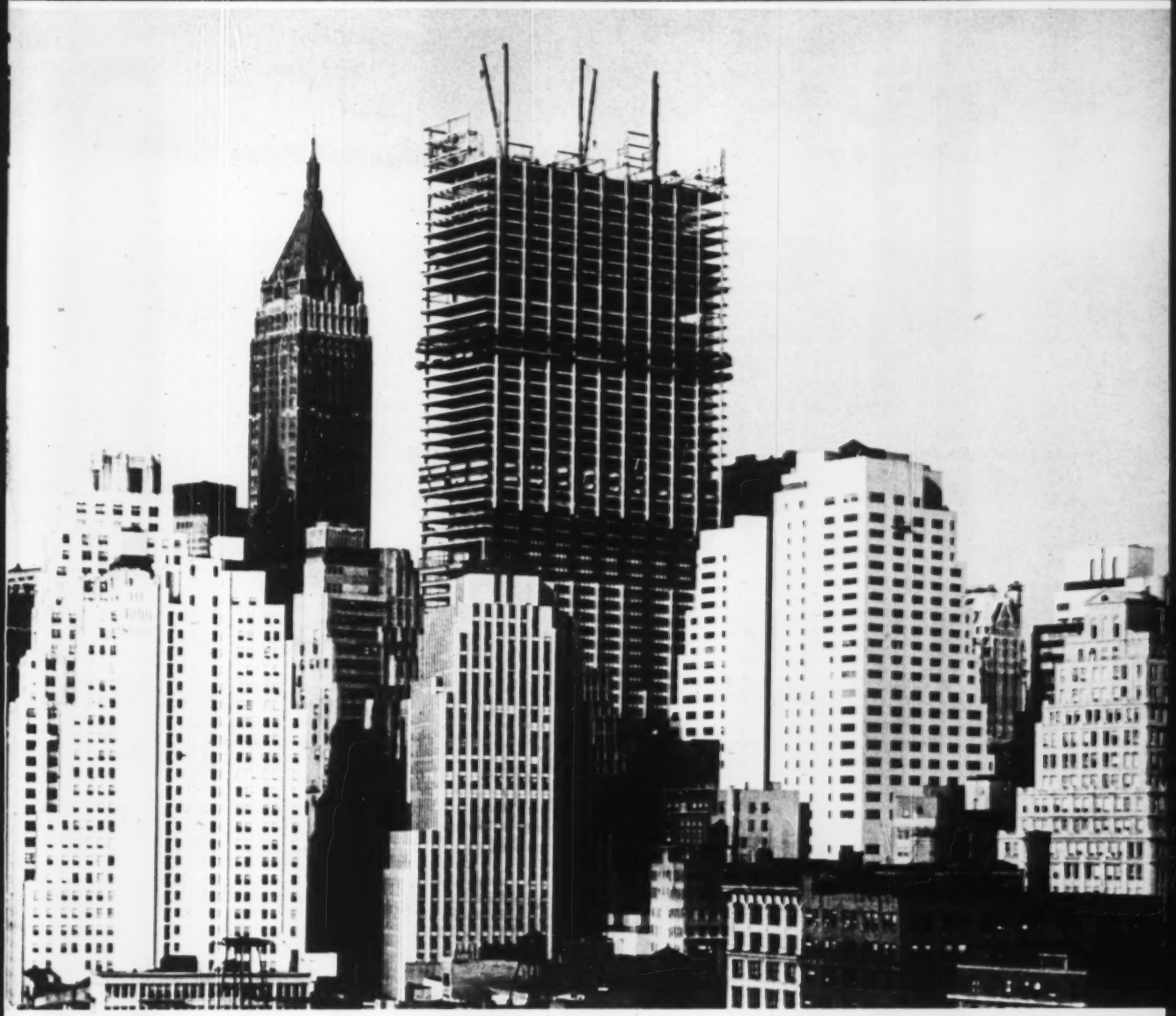
His work so far has been confined to the laboratory and to the water distribution system for a campus greenhouse. But he hopes to try the method soon on a city water system.

Progress Report on STEEL CONSTRUCTION

DECEMBER 1959

BETHLEHEM STEEL

BETHLEHEM FABRICATED STEEL CONSTRUCTION



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Sixty Stories of Steel

NEW YORK CITY—Here is the steel framework for one of the premier buildings of our time. It's The Chase Manhattan Bank Building, the largest office building constructed anywhere in twenty-five years, and now one of the city's architectural landmarks.

We are preparing an abundantly illustrated booklet describing the substructure and superstructure steelwork for Chase Manhattan. If you would like to have a copy, write to Publications Department, Bethlehem Steel Company, Bethlehem, Pa.

BETHLEHEM STEEL

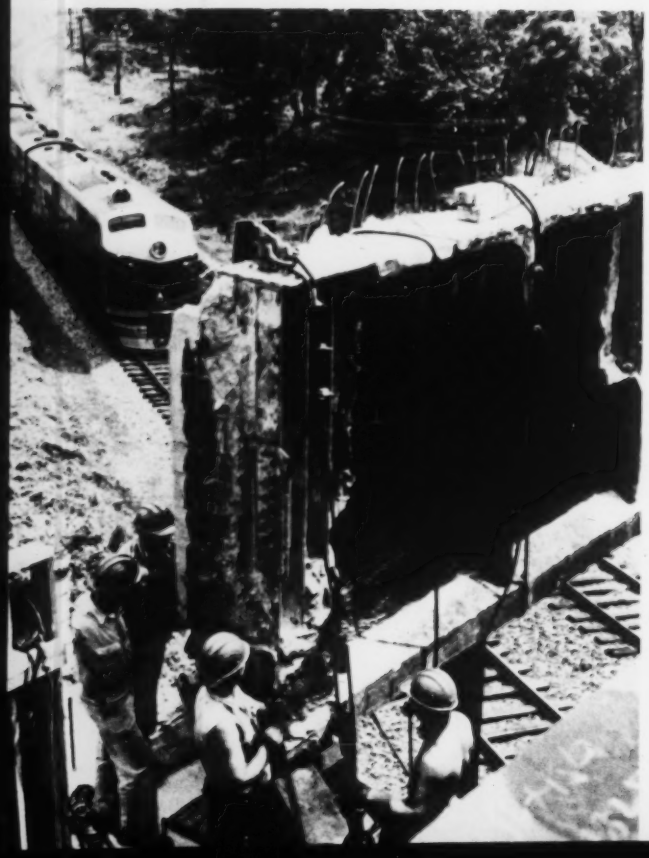
Another Mississippi River Crossing

DAVENPORT, IOWA—Old Glory flapped briskly in the breeze as Bethlehem bridgemen eased the closing truss for the Iowa-Illinois Memorial Bridge into place on August 7. The truss, measuring 53 ft in length and 14 ft deep, and weighing 8 tons, was picked from a barge on the Mississippi River by a water-borne 50-ton-capacity stiffleg tower derrick.

The new bridge is virtually identical to the well-known Davenport Bridge immediately adjacent to it, designed by the same engineering firm, and completed by Bethlehem in 1935. Completion of the new crossing late this year will permit one-way traffic on each bridge, doubling vehicular capacity.

The overwater section of the bridge is 3,370 ft, including a 1,480-ft main suspension span. Total length between abutments is 5,017 ft. Approach spans are of continuous-beam, through-truss, and deck-truss design.

Approximately 5,250 tons of steel for the Memorial Bridge were fabricated at our Rankin, Pa., and Chicago works; the bridge strand and hangers for the suspended span at our Williamsport, Pa., Plant.



How to Stretch a Bridge

WASHINGTON, D.C.—A B&O train rumbles below as Bethlehem bridgemen wrestle an 80-ton plate girder into a new position on falsework. The project is the widening—to six lanes—of a 25-year-old four-lane plate-girder bridge on New Hampshire Avenue.

The two outer girders of the existing bridge, though still sound, were too deep to remain in their present position (they would project 1½ ft above the roadway). And they couldn't, of course, be simply trimmed down. So it was decided to move them outboard, replacing them with new steel.

To accomplish this, the contractor first performed such functions as preparing new bridge seats and stripping away concrete paving, curbs, sidewalks, and parapets. Falsework was erected to take the load until new girders were placed.

Then Bethlehem crews disconnected the old girders, jacked them out to their new positions, placed new girders, floor beams, and stringers, and made all necessary connections. Bethlehem's share of the job took only eight days—during which the two inner lanes of the bridge were open to traffic.

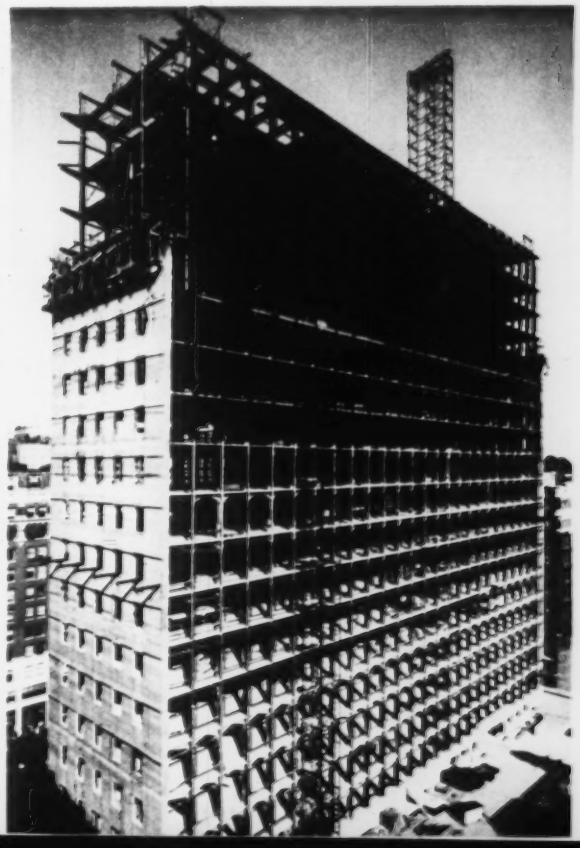
BETHLEHEM STEEL

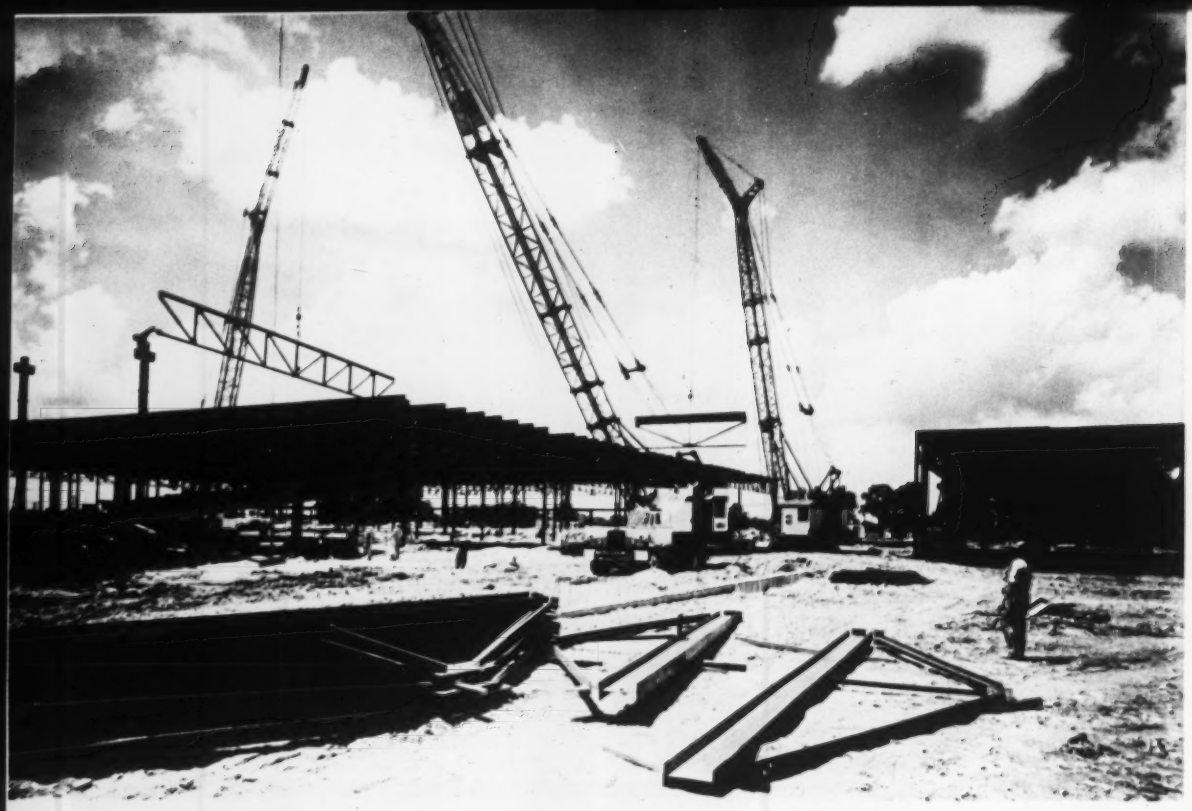
Topping Out
22 Stories in Seattle

SEATTLE—One of the biggest office buildings ever constructed in the Northwest is the Washington Building, the 22-story major structure of the Metropolitan Center. A project of the University of Washington's University Properties, Inc., the center will include a post office building and a seven-level parking garage.

Shown here at about the time of topping out, the structure presents an interesting pattern of steel. Note particularly the tapered spandrel beams. Half-sections of these beams were connected to two-tier column sections at our Seattle works, forming fabrications resembling the Cross of Lorraine. When positioned, the spandrel beams were then connected at their mid-points.

Joists supporting the poured-concrete floors are notable for their hexagonal cut-outs, as can be seen in the upper left of the photo. This reduced the weight of the beams by 50 per cent, and permitted the passage of utilities.





Atlanta Plant for Crown

ATLANTA—This job presented two challenges to Bethlehem. One was to erect the steelwork in a hurry. The other was to handle the fabrication of numerous roof ventilators in the field rather than in the fabricating shop.

The project is a huge new can, crown, and closure plant of Crown Cork and Seal Company. Its main manufacturing area measures 540 x 420 ft, all 31½ ft high. It's laid out in 30 x 60-ft bays, spanned by 60-ft trusses fabricated at our Pottstown, Pa., works. Lower structures on three sides house administrative, shipping, and other offices. These areas are spanned with bar joists, also made at Pottstown. The entire structure is high-strength bolted.

The flexibility of steel construction is well illustrated by the on-the-site fabrication referred to earlier. With relative ease we were able to fabricate the bents and connections for more than eighty ventilators. Bolt holes were drilled in the framing beams, and the structures were erected.

Another major addition to the amazing industrial growth of Atlanta, the plant is at the city line near Hapeville, adjacent to the airport and just off the heavily travelled Southeast Expressway.

Smooth Work over White Water

NIAGARA FALLS—Far out over the swirling Niagara River goes a section of a plate girder. It is being swung into position on a temporary steel "island" support. The piece weighs 59 tons, is 96 ft long, and varies in depth up to 12 ft. It's being handled by a stiffleg derrick of 85-ton capacity. The safety net, a "must" in this case, would save a bridgeman from a sure-fatal plunge over the Falls, downriver from the bridge site.

The completed bridge will boast the longest main span of any bridge of its type in the nation—450 ft. Total length with sidespans is 590 ft. It will also be one of the shallowest bridges of its type, having a midspan depth of only seven feet.

When completed, the span will handle all vehicular traffic to Goat Island, a favorite vantage point for sightseers. It's part of an extensive project calling for development of a river-front parkway and expansion of tourist facilities on the island and on the mainland near the Falls.

BETHLEHEM STEEL

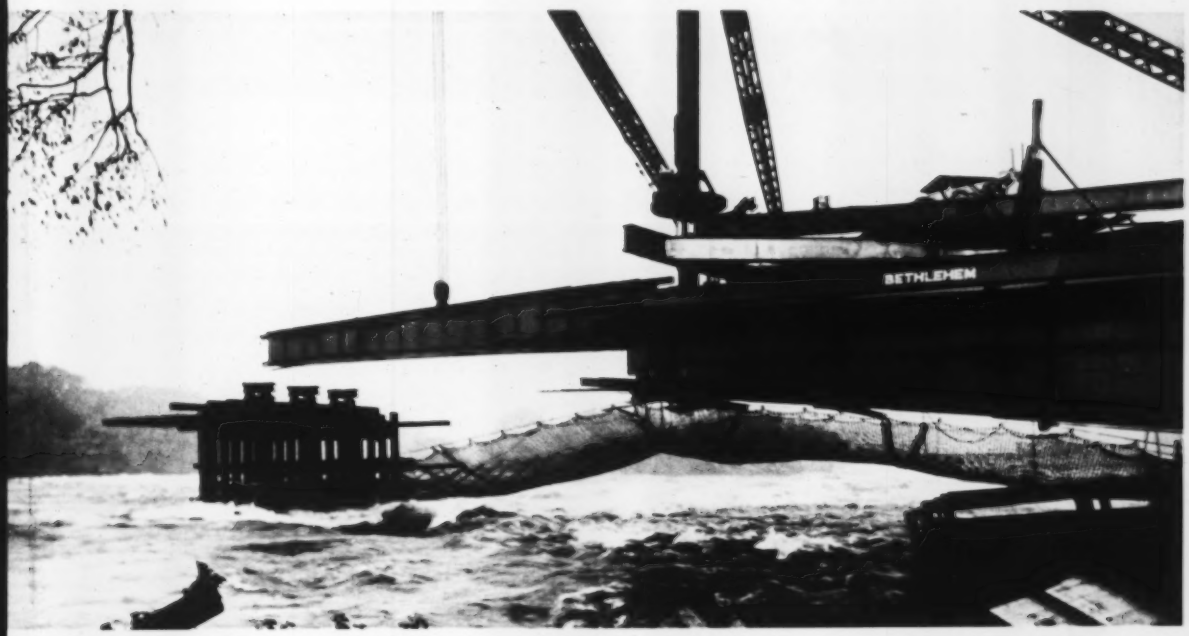
BETHLEHEM STEEL

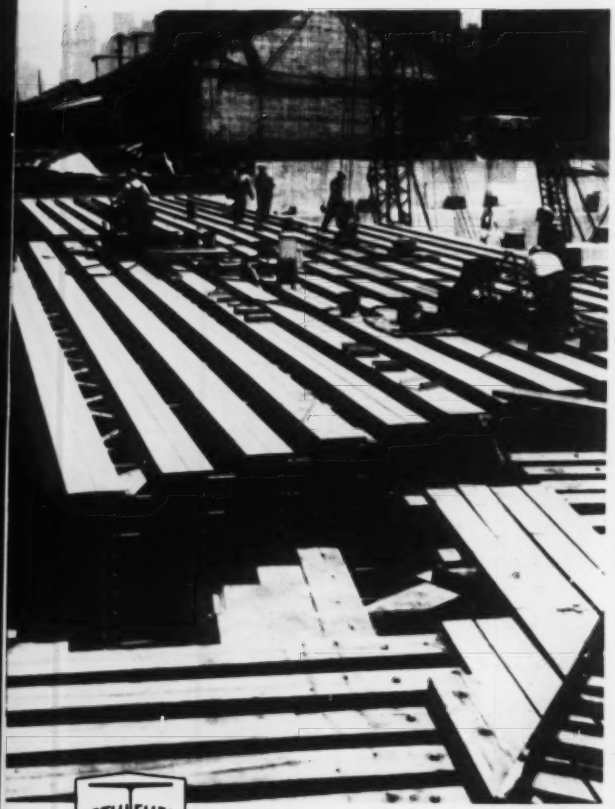
Saddling Up

BRONX, N. Y.—At the dizzying height of 350 ft above the waters of the East River Bethlehem crewmen early in September placed the suspension cable saddles for the Bronx-side tower of the Throgs Neck Bridge. Shortly thereafter the operation was duplicated for the Queens-side tower, marking an important milestone in construction of this major new bridge.

Scheduled for completion in 1961, the bridge will extend 11,070 ft including elevated approaches, its main suspension span being 1,800 ft. Total cost is estimated at $90 million.

Another important Bethlehem contribution will be construction of the bridge approach viaducts in Queens on Long Island. Motorists in this area will, when the bridge is in operation, have speedy access to the Bronx and thence to New England and upstate New York.





Building a Highway Under
. . . 21 Railroad Tracks
. . . 2 Freight Houses
. . . 2 Freight Driveways
. . . 1 City Street

CHICAGO—It isn't an easy job. Among other things it requires one of the heaviest concentrations of structural steel ever designed for highway construction. The project is a railroad grade separation between West Wayman and West Kinzie streets in downtown Chicago, to permit the flow of Northwest Expressway traffic under one of the city's biggest and busiest railroad freight yards.

The heavy girders shown being placed by Bethlehem crews are a few of two hundred and fifty-seven, varying from 76 to 80 ft long, 6 to 9 ft deep, and weighing from 20 to 50 tons. They add up to 7,200 tons for the 700-ft-long structure. Their erection entails the solution of a multitude of problems, the primary requirement being to avoid disturbing normal yard activities.

The work of the general contractor includes excavating under tracks, supporting them on wooden trestles, and constructing concrete abutments and piers. Then, when railroad service permits, tracks are removed, the girders and steelplate deck are quickly installed, and the tracks returned to their original positions.

New Life for an Old-Timer

NEW YORK CITY—Here is the future new face of the 63-year-old building housing the Fifth Avenue Office of Morgan Guaranty Trust Company of New York, located at 44th Street and Fifth Avenue. Its basic 12-story structure is still there, topped by another 12 floors of steel framing and faced with modern curtain walls.

Expansion of the existing building was planned by Guaranty Trust Company well before its merger with J. P. Morgan Co., Inc., last April. The method of alteration chosen was found to be more economical from a real estate operating and management point of view than constructing an entirely new building. However, it posed a multitude of problems for the designers and contractors.

One primary consideration lay in the fact that twenty-four of the old columns were incapable of taking triple their original loadings. This is being remedied by removing those columns and their foundations and replacing them with new steel. This delicate and complex job, subcontracted to Bethlehem, required probably as ingenious an erection scheme as has ever been worked out for building construction.

With husky new columns in place, Bethlehem crews will erect the top twelve levels in the conventional manner. More than 4,400 tons of steel, fabricated at our Pottstown, Pa., works, are required for the entire project.

Site With a View–For Men of Vision

BETHLEHEM—On the very crest of South Mountain, 700 ft above the Lehigh River, Bethlehem Steel's new research laboratories are rapidly taking shape. The site is less than a mile from Bethlehem's headquarters building and "home" plant, which stretches four miles along the banks of the river. The site commands a spectacular view of the entire Lehigh Valley to the north and the Saucon Valley to the south.

At center-left is the framework for a 242 x 96-ft shop, warehouse, and structures-testing building, which features a unique roof-supporting system of steel-pipe trusses. At right is the administration building, which includes a bench-scale laboratory wing, shown in closer detail in the accompanying photo.

The full magnitude of the multi-million dollar project can better be comprehended when it is understood that the extensive work shown here represents only 20 per cent of the entire project!

An unusual architectural fillip is the wavy contour of the fascia of the administration building.

BETHLEHEM STEEL

CREDITS . . .

The Chase Manhattan Bank Building	*Architect:* Skidmore, Owings & Merrill; *consulting foundation engineer:* Moran, Proctor, Mueser & Rutledge; *consulting structural engineer:* Weiskopf & Pickworth; *general contractor:* Turner Construction Company; *foundation contractor:* The Foundation Co., George M. Brewster & Son, Inc., and Joseph Miele Construction Co., Inc.
Iowa-Illinois Memorial Bridge	*Owner:* Davenport Bridge Commission; *engineer:* Modjeski & Masters.
New Hampshire Avenue Bridge	*Engineer:* Modjeski & Masters; *general contractor:* S. T. G. Construction Company, New York City.
Washington Building	*Architect:* Naramore, Bain, Brady & Johanson; *structural engineer:* Worthington & Skilling; *general contractor:* Lloyd W. Johnson and Morrison-Knudsen Co., Inc., a joint venture.
Crown Cork & Seal	*Architect and engineer:* Robert and Company Associates; *builder:* McCloskey Enterprises, Inc.
American Rapids Bridge	*Owner:* Power Authority of the State of New York; *design engineers:* Praeger-Kavanagh.
Throgs Neck Bridge	*Owner:* Triborough Bridge & Tunnel Authority; *engineers:* Ammann & Whitney for the suspension bridge; E. Lionel Pavlo for the approach viaducts; *consulting architects:* Aymar Embury II, A. Gordon Lorimer, John B. Peterkin, and Theodore J. Young.
Chicago Railroad Grade Separation	A project of the Bureau of Engineering of the Department of Public Works, City of Chicago, in cooperation with the Illinois Division of Highways, the Cook County Department of Highways, and the Bureau of Public Roads; *general contractor:* Kenny Construction Company.
Morgan-Guaranty Trust Building	*Architect:* Eggers and Higgins; *structural engineer:* Weiskopf & Pickworth; *mechanical and electrical engineer:* Cosentini Associates; *general contractor:* Turner Construction Company.
Bethlehem Steel Research Laboratories	*Architect:* Voorhees Walker Smith Smith & Haines; *consulting engineer and landscape architect:* Clark & Rapuano; *general contractor:* Turner Construction Company.

LITERATURE AVAILABLE—FREE OF CHARGE

Booklet 482—Building The Greater New Orleans Bridge. Describes construction of the superstructure for the nation's longest cantilever highway bridge.

Booklet 454—Building the Walt Whitman Bridge. The picture-story of construction of a major suspension bridge over the Delaware River at Philadelphia.

Booklet 495—High-Strength Bolting for Structural Joints. A 1959 revision of our 24-page booklet describing and illustrating the use of high-strength bolts for structural applications.

Catalog S-58—Bethlehem Structural Shapes. Contains data and tables useful to designers.

Booklet 503—Building a Giant Water Line. Describing the field erection of a 14-ft-diam, all-welded, above-ground flow line.

Booklet 127C—Typical Installations of Bethlehem Steel Sheet Piling.

Catalog 223—Bethlehem H-Piles. A comprehensive catalog on the subject.

Catalog 433—Bethlehem Steel Sheet Piling. Dimensions, properties, and specifications.

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Booklet 539

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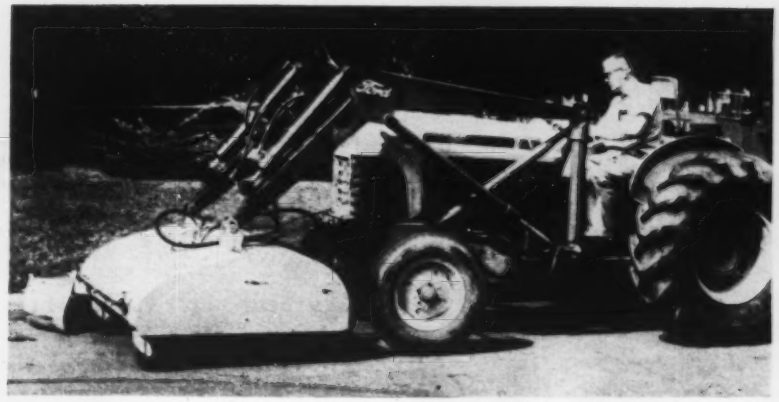
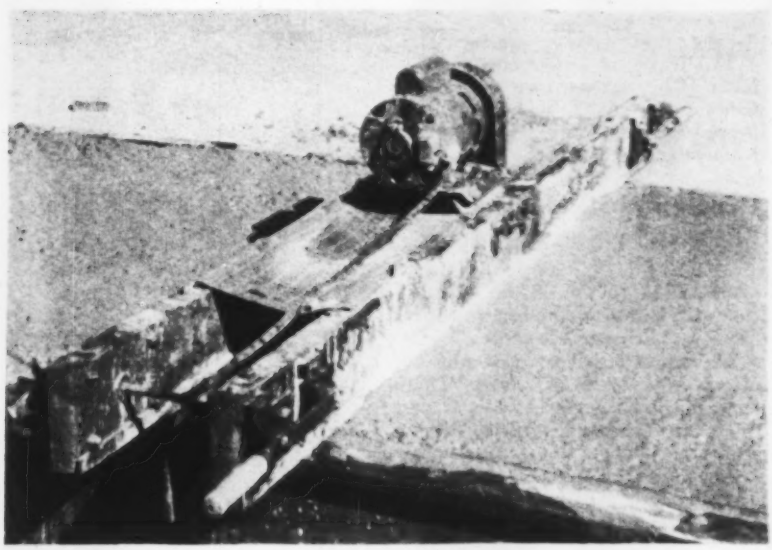


Pick-Up Sweeper for Loader

A pick-up sweeper interchangeable with the loader bucket of tractor-mounted front-end loaders attaches in minutes and needs no extra valves or plumbing.

Dirt is swept into the pan and loader arms lift the sweeper to dump the load into truck or container. Brush is hydraulically driven from loader pump.

Optional equipment for the Model 594 includes gutter brush, sprinkler system for dust, broom extension arms. Mars Equipment Co., Inc., 5209 Broadway, Minneapolis 22, Minn.



Screed Has Adjustable Wallop

A twin beam vibrating screed has an amplitude of vibration that can be adjusted to suit the particular job. The screed is handy for striking off narrow slabs, such as sidewalks and prestressed concrete beams.

The equipment consists of a vibrating unit driven by a 1-hp electric motor or a 2½-hp gasoline engine, which transmits the vibration evenly to two beams. With the double beams it is like two passes at once. The first one strikes off the concrete and the second one removes any air bubbles, leaving a completely smooth surface, according to the manufacturer.

By turning the eccentric on its axis and then locking it in position with set screws, any desired amplitude can be obtained. The screed weighs 140 lb for each 4-ft length. It is available in lengths of from 4 ft to 12 ft. Stow Mfg. Co., 19 Shear St., Binghamton, N. Y.

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- **Saves labor. Eliminates cost of cleaning, sanding and recoating after each pour.**
- **Thompson's Water Seal permits eight or more pours per plywood form (min. 4 pours per side).**
- **Eliminates form damage during stripping. Forms can't stick. Won't soften wood, prevents deflection.**
- **Easy to apply by brushing, dipping or spraying.**

Thompson's Water Seal is deep penetrating, colorless, leaves no residue, won't stain concrete; surface is dust-free, ready for painting.

Available in 5 and 55 gallon drums from suppliers to the construction industry.

See catalog in Sweets Architectural file and Light Construction file.

Thompson's

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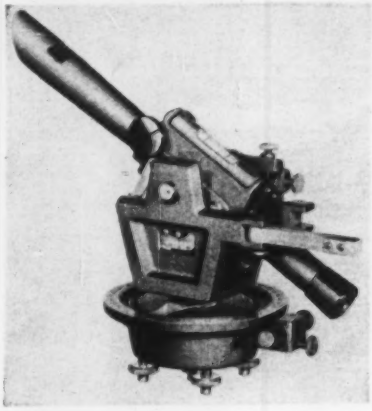
San Francisco, Los Angeles, San Diego, Portland, Chicago, Seattle, Denver, Dallas, Houston, St. Louis, St. Paul, Detroit, Philadelphia, New York City, Memphis, Tampa, Cleveland, Atlanta, Honolulu. Factory: King City, Calif. 5647R



Builder's Transit to Sell For Less Than $100

A transit designed for builders is now on the market at $99.50, including tripod and case.

The instrument has aluminum alloy standard and base construction. Its horizontal circle is stamped directly into the base. The base is enclosed for dust and moisture protection.

The optical system is 12 power. The telescope has a built-in sunshade.

The tripod is European-type, wide-frame. The carrying case is glass-fiber reinforced. Model 8010. David White Instrument Co., 2051 No. 19th St., Milwaukee 5, Wisc.

Plastic Fabric Tested For Use in Snow Fences

Lightweight, plastic-fabric fences manufactured by the Dow Chemical Company withstood the heavy snows of Saginaw, Michigan last winter.

The fences tested last year consisted of two 12-in. bands of Rovana (Dow's saran micro-tape) spaced with a 12-in. gap. The bands were wire-tied to posts spaced at 12 ft.

According to S. W. Dubee, Michigan highway department road maintenance engineer, the woven-fabric fences performed well in the abnormally heavy winter of 1958-59. Light tensioning of the bands permitted no sag and, at the same time, created the desired amount of swirl.

Installation costs are low, Dow states. Only three men were required to put up the plastic fences. Five are required to install conventional wood-slat fences.

Snow tests in Michigan and in 10 other states are scheduled this winter.

Other uses for plastic fabric fences—retaining sand and earth along river banks—are now under investigation. Dow Chemical Co., James River Div., Williamsburg, Va.

Pylam Company Offers Line of Tracer Dyes

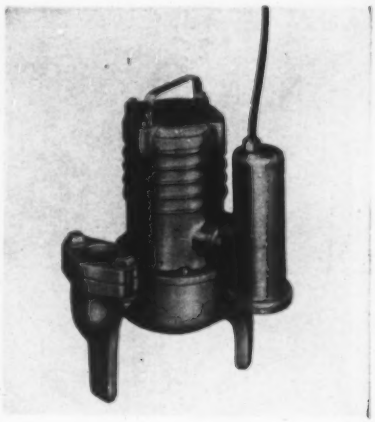
A new line of fluorescent tracer dyes for locating water or fuel leaks is on the market under the name Pyla-Tel.

The dyes are made in dry soluble powder form. They come in six colors. Packages range from ½-lb tins to 100-lb drums. Pylam Products Co., 799 Greenwich St., New York, N. Y.

Hydraulic Lift Crane Has Cable Take-Up System

A hydraulic lift crane with an extensible-retractable boom is equipped with a cable take-up system that keeps loads at constant heights as the boom is extended or retracted vertically. Boom can extend or retract under full load.

Known as the 400-E, the crane works in a full 360 deg circle. It lifts from 7,000 lb at 8 ft to 350 lb at 16 ft. Teale & Co., P. O. Box 308, Omaha, Neb.

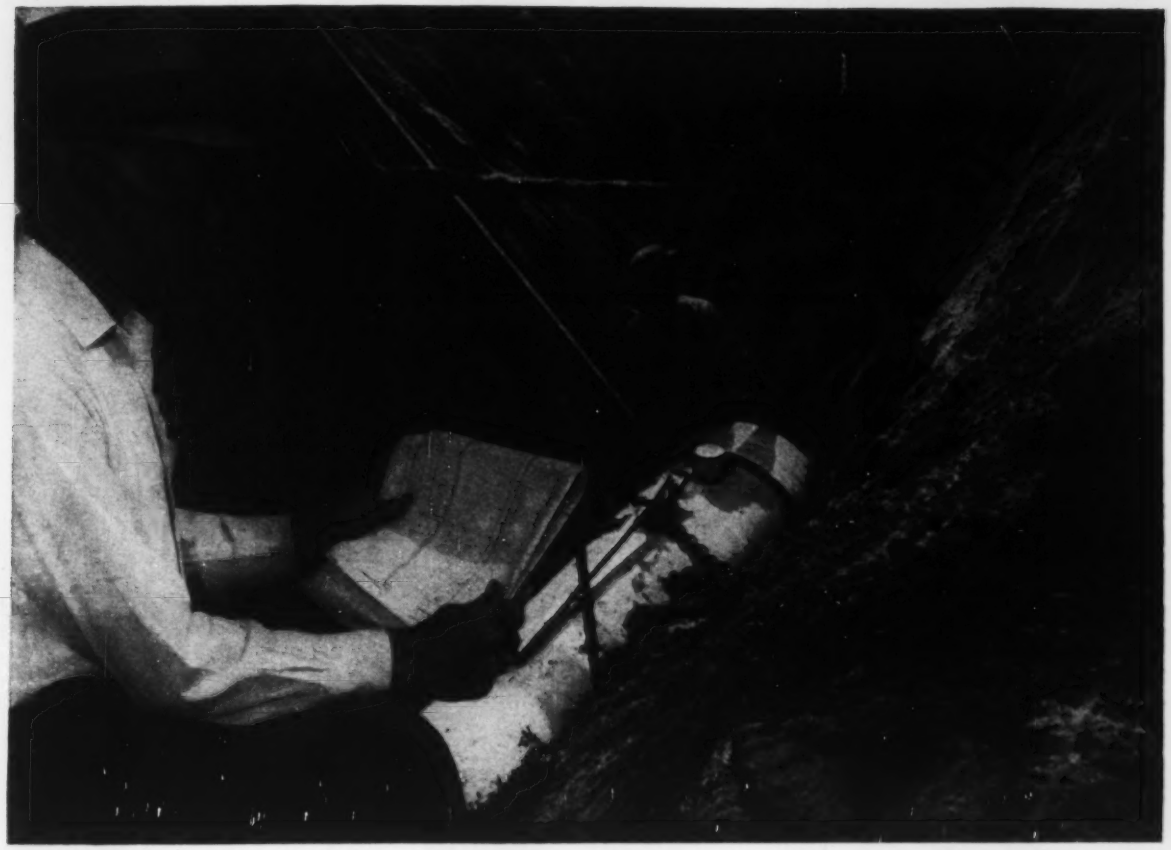


Pump in Home Basement Lifts Wastes to Sewer

A submersible sewage pump designed for residential installation was developed primarily for the installation of basement toilets and other fixtures where waste must be pumped up to outside sewer lines.

As described in Bulletin SE 850, the pump has a capacity of 75 gpm at 15-ft head, or 50 gpm at 20-ft head. It handles solids up to 1½ in. dia. It operates quietly, driven by a ½-hp capacitor-type motor. The control is an automatic microswitch in a sealed detachable unit mounted on the motor.

The unit can be installed in basins as small as 24 in. dia. It is ideal for dosing chamber of septic tanks, drainage systems and other disposal, says the manufacturer. Weil Pump Co., 1530 N. Fremont St., Chicago 22, Ill.



"Not a 'comeback' in 18 years" ...with Transite Sewer Pipe

says Anthony Garcia, President
Allerton Construction Co., New York

"In my eighteen years of installing Transite sewer mains and house laterals, I have never had a 'comeback' because of line failures. Most of the installations have been 100% under water. Therefore, tight joints that stay tight are absolutely essential! For these reasons Transite has always been my choice for sewer line service. I never worry about passing leakage or infiltration tests. I play it safe —with Transite."

You'll want to read how Johns-Manville Transite® Pipe has helped other contractors increase their profits and productivity . . . in the informative and interesting new, 8-page booklet, TR-206A. Send for it now! Address Johns-Manville, Box 14, New York 16, New York. In Canada, Port Credit, Ontario.

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Mammoth 250-ton girders cantilever over piers of longest U. S. prestressed bridge. T-shaped drop-in girders (casting yard upper right) will be floated into position by barge.

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Oneida Lake Bridge, longest prestressed bridge in the nation spans 320-ft. from pier to pier. The structure consists of twenty-four 147-ft. girders weighing 250 tons each which cantilever 72 feet over shore side piers and ten 222-ton drop-in girders 231 feet long. All girders were precast and prestressed in three job site casting beds.

PLASTIMENT was specified for its proven ability to facilitate placement of the concrete in hard-to-get-at sections of the 14-ft. high forms; speed strength development (4,000 psi in five days without steam curing) permitting early stripping of forms and early stressing; control the quality of the concrete with varying temperatures. Quantities of PLASTIMENT were varied according to manufacturer's specifications to assure uniformity under varying temperature conditions.

PLASTIMENT features are detailed in Bulletin PCD-59. Contact your Sika distributor for your copy. District offices and dealers in principal cities; affiliate manufacturing companies around the world.

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Passaic, N. J.

The Winners

Construction men elected to state, local posts

Three contractors and an engineer won office last month in state and local elections.

Paul B. Johnson, Jr., a lawyer and contractor from Harrisburg is Mississippi's new Lieutenant Governor. The son of a former Mississippi governor, Mr. Johnson owns the Paul B. Johnson Oil Fields Contracting Co., specializing in oil fields, road and subdivision construction.

Before his election to the new post, Mr. Johnson served as U. S. Attorney in the Southern District of Mississippi.

Another Mississippi contractor in state politics is John R. Junkin of Natchez. He has been reelected to the state House of Representatives for his fifth consecutive four-year term.

Mr. Junkin, a planter and contractor, owns St. Catherine Gravel Co.

H. Lee Dennison, a New York City consulting engineer, was elected County Executive in Suffolk County, Long Island where he will be chief administrator. Mr. Dennison, a Democrat, won in what is normally a Republican county.

Mr. Dennison is a builder in Port Jefferson Station, New York. He had also worked with the Suffolk Department of Highways (now the Department of Public Works) for 25 years.

In Phoenix, Ariz. Samuel Mardian, a contractor, has been elected mayor. He is Secretary-Treasurer of the Mardian Construction Co. and Glen-Mar Door Manufacturing Co. Before entering the construction business in 1947, he was an auditor in Los Angeles.

Mr. Mardian's firm holds a $2.5-million contract for an addition to the Arizona Capitol Building.

J. S. Withers Named To Head Georgia Firm

John S. Withers is the newly elected president of the John J. Harte Co., Engineers and Architects, Atlanta. For the past year he has been executive vice president.

Before joining the company, Mr. Withers worked for 15 years for the Wyatt C. Hendrick Co. in Ft. Worth and Houston. He served as executive in charge of a number of design and construction projects in the United States and overseas.

Mr. Withers is a native of South Carolina and a graduate of Clemson College in civil engineering.

C. Fred Borden

Kaiser Steel Appoints New Vice President

C. Fred Borden has been appointed executive vice president of Kaiser Steel Corp. He had been vice president in charge of sales since 1950.

He joined the sales department in 1945 and was named assistant general sales manager the next year. In 1947 he was promoted to general sales manager.

Before joining Kaiser Steel, Mr. Borden was with Columbia Steel Co. for nine years, first in sales and later as assistant to the vice president of the construction division.

Careers

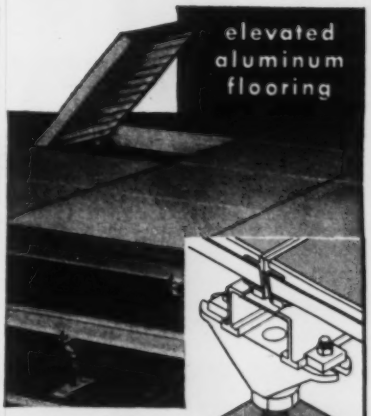
Public Works

J. C. Womack, John A. Legarra and **L. L. Funk** have been promoted by the California division of highways. Mr. Womack is the new deputy state highway engineer. He is being replaced in his former job by Mr. Legarra, who takes over as assistant state highway engineer. Mr. Funk is now planning engineer, succeeding Mr. Legarra.

Guy Zimmerman is resident engineer for the $2.5-million terminal project under construction at the Akron-Canton Airport near Akron, Ohio.

L. Miner Doolen is the new chairman of the Michigan State highway industry committee. The committee was created two years ago to advise the Michigan State highway commissioner on the highway construction industry. Mr. Doolen is an executive of a Lansing construction equipment firm.

(*Men and Jobs continued p. 70*)



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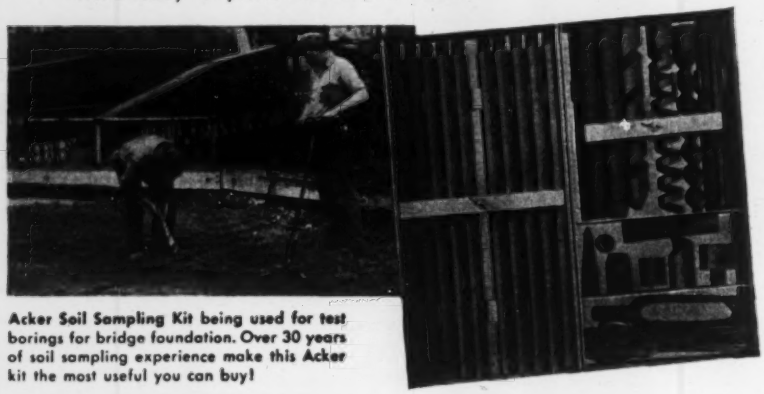

Acker Soil Sampling Kit being used for test borings for bridge foundation. Over 30 years of soil sampling experience make this Acker kit the most useful you can buy!

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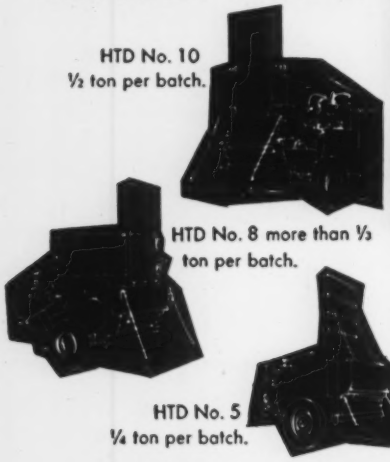

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. . . Men and Jobs

Harry M. Burgin, assistant division engineer for the North Carolina highway department, has been named division engineer. He succeeds **M. E. Beatty,** who retired after 38 years service.

Harry D. Freeman has been appointed deputy director of public works for the new planning post created by the California highway department. The position was established to study freeways in relation to community planning. Mr. Freeman has been director of planning, engineering and development for the Sacramento Redevelopment Agency.

Paul R. Staffeld, engineer for the Minnesota highway department, has been named director of the programming division. He will direct programming for all state highway construction and research on highway needs.

Frank A. Howard is new engineer director of the Virginia Road Builders Association. He had been district engineer at Salem for the Virginia Department of Highways.

C. F. Weiler takes over as city engineer of Monterey, Calif. He had been assistant city engineer in Palo Alto, Calif. for two years.

Lowell S. Coy has been named division engineer for the North Carolina district of the Bureau of Public Roads. Mr. Coy had been assistant division engineer at Austin, Tex., before his transfer. He succeeds **A. L. Hooper** who retired after 45 years with the Bureau.

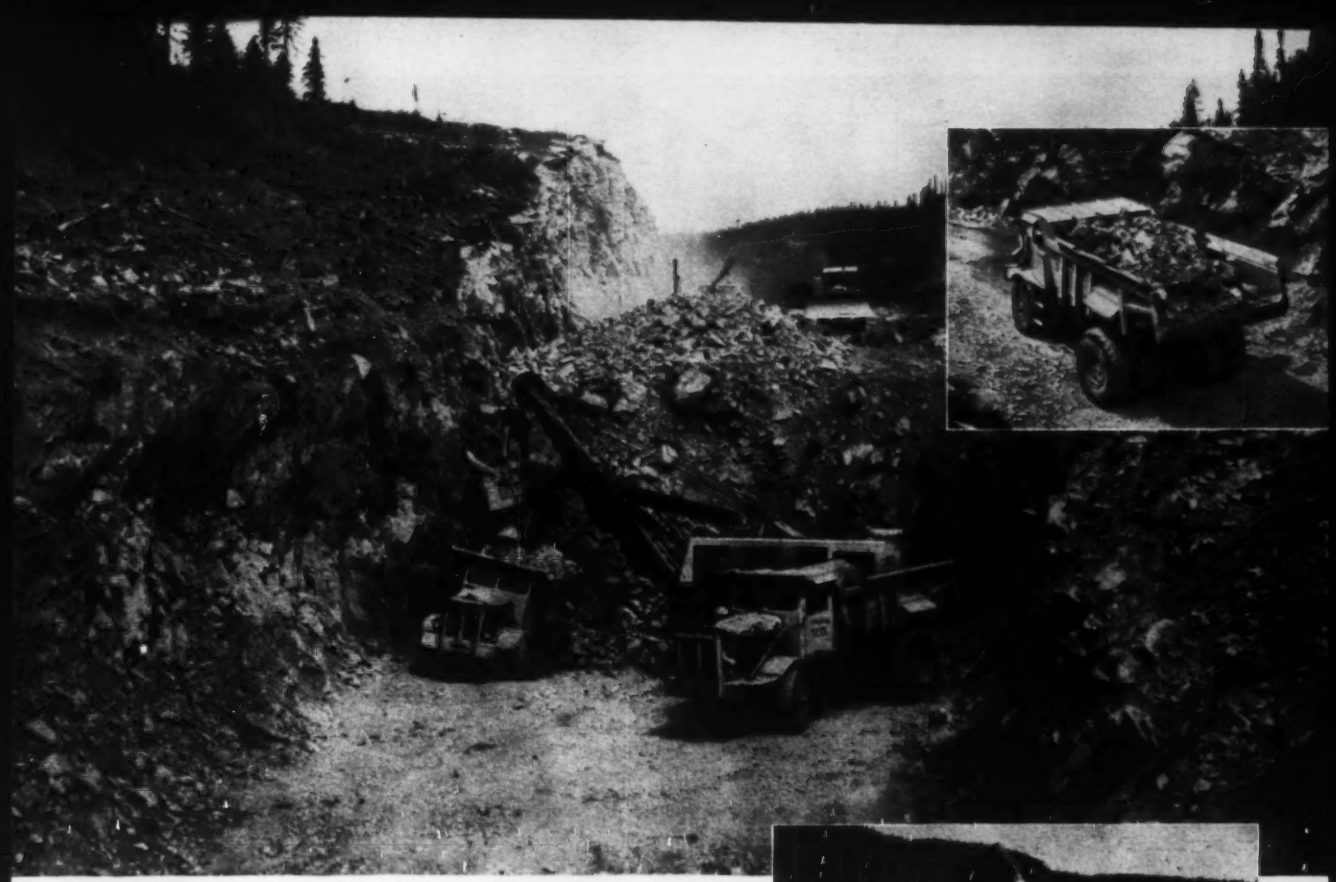
Dwight R. Palmer, New Jersey highway commissioner, has been named State's representative to the New York-New Jersey transportation agency.

W. C. Ponder is city engineer for the newly organized city government at Richland, Wash. Richland is headquarters city for the Atomic Energy Commission's Hanford works. Mr. Ponder worked for five years with the General Electric Co. before taking over at Richland.

Rear Admiral Martin W. Kehart has been transferred to New York City as director of the Atlantic Division of the Navy Bureau of Yards and Docks. He succeeds **Rear Admiral William Sihler** who retired.

Before his transfer, Rear Admiral Kehart served as District Engineer for the Navy's Fourteenth District with headquarters in Pearl Harbor. Among the projects he directed are construction of the Naval Hospital at St. Albans, Long Island, the $50-million rebuilding program at Pearl Harbor after the Japanese attack and a $40-million construction program for the armed services at Adak, Alaska.

(*Men and Jobs continued p. 72*)



EUCLIDS RUSH *"Life-Line"* TO ORE MINE

Because of its location in a very remote and practically inaccessible area of northern Quebec, a big iron ore mining development awaits completion of a new 200 mile railroad. When operations are in full swing, iron ore from Quebec Cartier's new mine will be transported by rail to Port Cartier, east of Shelter Bay on the St. Lawrence River. From there it will go by ship to steel mills in the United States, Canada and Europe.

Construction of this railroad through rugged country is a big tough job—one that requires dependable, large capacity equipment to keep the rush project on schedule. Pitts-Foley Co., contractors, are using 25 Euclid Rear-Dumps of 22-ton capacity. Powered by diesel engines of 300 h.p., these "Eucs" haul heavy rock excavation from cuts to fill areas. In spite of steep grades, rough roads and an operating schedule of 20 hours 6 days a week, these heavy duty haulers are maintaining an availability record of 90% or better.

With over 25 years of experience in building specialized earthmoving equipment, Euclid and its world wide dealer service organization offers you bonus benefits that bring a greater return on investment. See your Euclid dealer for technical assistance with any off-highway hauling problem.

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. . . Men and Jobs

Karl E. Wallace is the new commissioner of the Public Buildings Service, heading all federal construction and management for the government's nonmilitary general purpose buildings. He came to Washington last year to direct the commission's third region and before that was commission head in Dallas.

Edmund R. Ricker has been appointed chief of the newly organized Traffic Engineering Bureau of the Pennsylvania Department of Highways. Before taking over in his new position, he was traffic engineer for the New Jersey Turnpike Authority since 1950.

Business

Henry J. Thomas has been named chief engineer and **J. I. Michaels,** consulting engineer for the Massey-Ferguson Industrial Division, Wichita, Kan. Mr. Thomas joins the company after five years with Seaman Gunnison, Inc., Milwaukee, where he supervised the design and fabrication of earth moving and construction equipment. Mr. Michaels, a native of Wichita, designed the first gleaner combine in 1922. Since 1945 he has been associated with Mid-Western Industries, Inc. in the design and development of equipment.

David Fulton is vice president for sales of the Chemical Construction Co., New York City. Chemical Construction Co. is a subsidiary of the Electric Bond and Share Co., designers and builders of chemical plants.

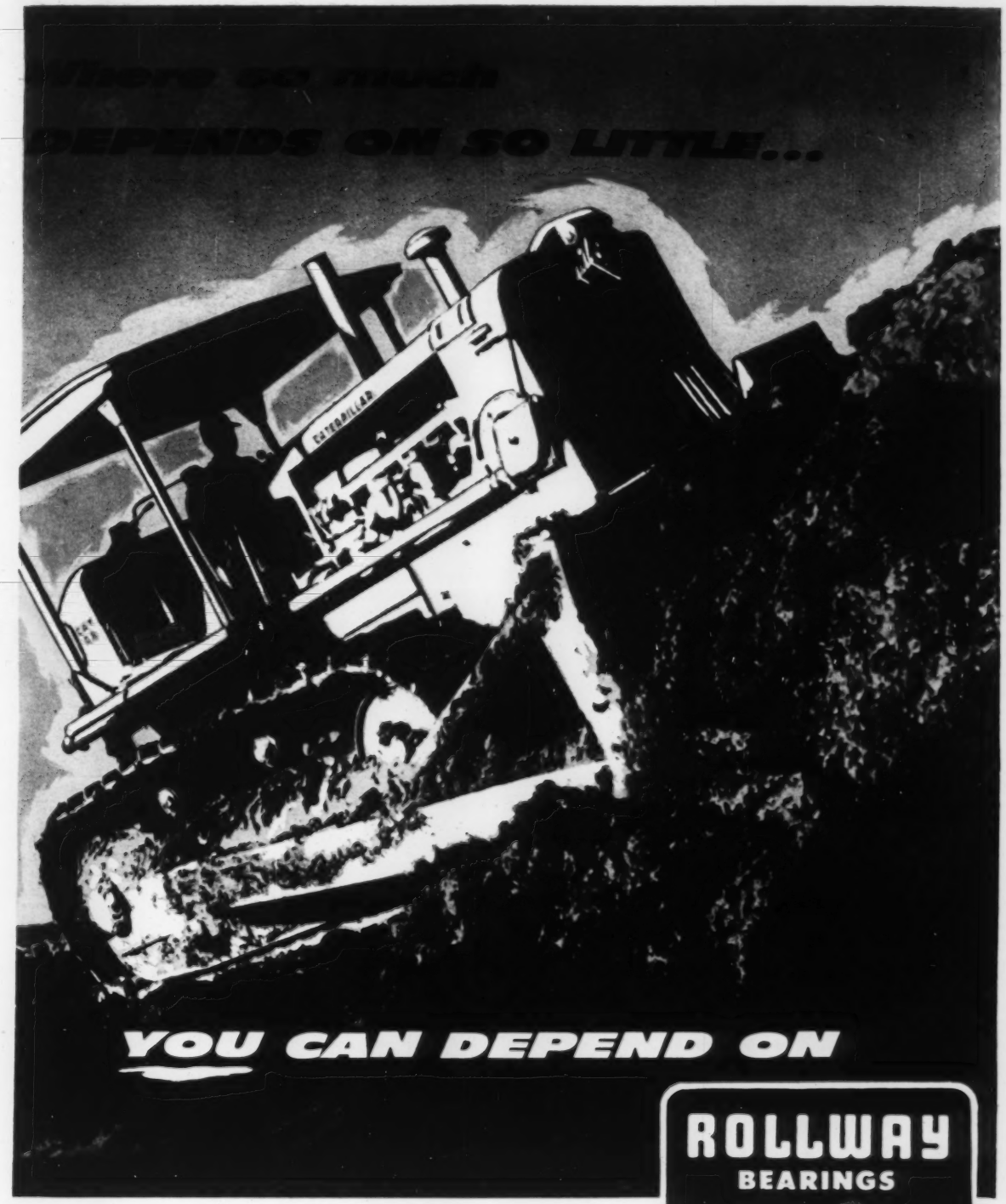
Four new construction managers have been appointed in the General Electric Real Estate and Construction Operation of Manufacturing Services. **E. Ross Sangster** directs the northeastern region; **Adrian K. Loomis,** the central region; **J. Bennett Austin,** the southeastern region; and **Thomas L. Kelly,** the western region. All are former project managers in the construction operation.

Lewis A. Paulsen heads a new division of the Federal Cement Tile Co., Chicago. Federal's Specialty Products Division will manufacture and distribute precast concrete materials.

Norman F. Garton has been named vice president for project development at the Conley Engineering Co., Los Angeles. Before joining Conley, he directed facility engineering for Hughes Aircraft Co.

John W. Hackney has been appointed vice president for process plant projects with Beaco Ltd., Montreal. He will handle the engineering and construction of chemical hydrocarbons and other process industry projects. He has been manager of construction and cost engineering for the Diamond Alkali Co.

Dale Madsker & Associates, accident control engineers and consultants, have opened offices in Atlanta.



The rugged Caterpillar crawler Tractor above is depended upon throughout the world to keep the big jobs moving. A single bearing failure can cause costly delays, perhaps endanger job completion in contract time. That's why Caterpillar and other well-known makers depend in many instances on Rollway bearings in vital spots! Rollway Bearing Company, Inc., Syracuse, N. Y., manufacturers of a complete line of radial thrust cylindrical roller bearings. Write for a complete product line catalog.

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Beth-Cu-Loy culvert under 43 ft of fill

Poking its nose out from under a 43-ft fill of earth and rock is a 292-ft-long culvert of 8-gage Beth-Cu-Loy corrugated galvanized steel. This 42-in.-diameter culvert rests easy beneath its tremendous burden because Beth-Cu-Loy pipe is flexible, thus tends to distribute the stresses peripherally.

Flexibility also permits corrugated galvanized steel pipe to take the impact and vibration of heavy vehicular traffic. It takes care of changes caused by freezing and shifting soil, and makes grading and alignment easy. Installation is simple and speedy, without need for heavy special equipment.

Beth-Cu-Loy culvert sheets conform to the rigid specs of the AASHO. Rolled from open-hearth steel, these sheets contain copper for added corrosion-resistance. Additional protection comes from a tight, 2-oz coating of Prime Western zinc.

We'll be glad to send you full details about Beth-Cu-Loy culvert sheets, as well as the names of fabricators who form them into pipe. Just call or drop a line to the nearest Bethlehem district office.

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Obituaries

Ralph D. Matheny, 61, former Fairfield County Engineer at Lancaster, Ohio. From 1937 to 1945 he was chief engineer examiner for the Ohio auditor's office.

Clarence Higginson, 67, industrial plant designer and retired owner of William Higginson & Son, New York City industrial architects and engineers. He designed the Bush Terminal Buildings in Brooklyn for the Bush Terminal Co.; the Laurel Park Race Track in Maryland and the American Chicle Co. offices in several U. S. and foreign cities. He graduated from Peekskill Military Academy and joined the family concern in 1911. He succeeded his father as head of the company twenty years ago.

Alton D. Taylor, 54, assistant dean of civil engineering at Ohio Northern University, Ada, Ohio.

Dan Parmelee Eells, 75, vice president of the export department of Bucyrus-Erie Co., Milwaukee. He joined the firm 38 years ago and was instrumental in building a world-wide market for the company's excavating machinery. He was also director of the Medusa Portland Cement Co. and chairman of the board of Basic, Inc., Cleveland.

Frederick M. Mann, 91, head of the University of Minnesota, School of Architecture. Professor Mann became head of the school in 1913 and held the post until 1936, when he retired. He graduated from the university in 1892 and received a master of science degree from MIT in 1895. His first post was instructor of architecture at the University of Pennsylvania. From 1902 to 1910 he directed the architecture school at Washington University in St. Louis, leaving there to join the University of Illinois faculty.

Frederick H. Frankland, 77, partner in Frankland & Lienhard, New York City consulting engineer. Born and educated in New Zealand, Mr. Frankland helped form the firm in 1947. From 1928 to 1947 he was technical director, chief engineer and director of engineering for the American Institute of Steel Construction.

John Quincy Shunk, 93, retired president and general manager of the Shunk Manufacturing Co., Bucyrus, Ohio. He pioneered the manufacture of earth-moving equipment and was affiliated with the company all his career until his retirement in 1945.

R. L. Whitted, 85, retired civil engineer in Asheville, N. C. He had served the federal government as a civil engineer for 26 years before retiring in 1945. He also taught civil engineering for a year at the North Carolina State College. He graduated in 1891 with a bachelor of science degree and later, with a master of science degree.

Harry B. Davis, 69, vice president and project manager of the Joseph F. Nebel Co., Washington, D. C.

Frank E. Carlson, 58, engineer for Kingsford, Mich. and former city manager. He had worked also for the Dickinson County Road Commission for 10 years, serving as chairman for two terms.

C. L. Emerson, 71, former president of Robert & Co. Associates, Atlanta. He left the company in 1945 to become dean of engineering at Georgia Institute of Technology. In 1948 he was named vice president of the Institute and was in charge of the largest physical expansion program in the school's history. He left the Institute in 1955 to be consulting engineer for A. Thomas Bradbury & Associates, Atlanta architectural firm.

William J. Fullerton, 90, retired chief engineer of the North American Cement Corp. He joined the company 25 years ago after serving for 30 years with the Helderberg Cement Co. Cobleskill, N. Y. A native of Lordstown, Ohio, Mr. Fullerton graduated from Ohio Northern University. In 1899 he received his master's degree in mechanical engineering from Cornell University.

Homer C. Althar, 71, former Bellaire, Ohio, city engineer and engineer for the Ohio highway department for 25 years.

Rollo W. Detwiler, 76, board chairman and former president of the Bryant & Detwiler Construction Co. He joined the firm in 1907, two years after his graduation from the University of Michigan Engineering College.

Frederick D. Eason, retired division engineer at Salem, Oregon, for the Oregon highway department. He worked for the state for 16 years.

James E. Moses, 59, superintendent of construction and maintenance for the Durham, N. C., water and sewer department.

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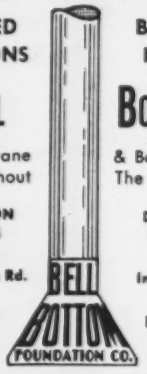

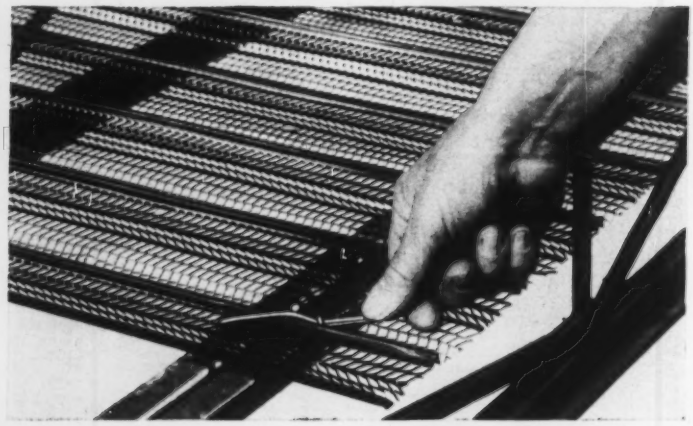

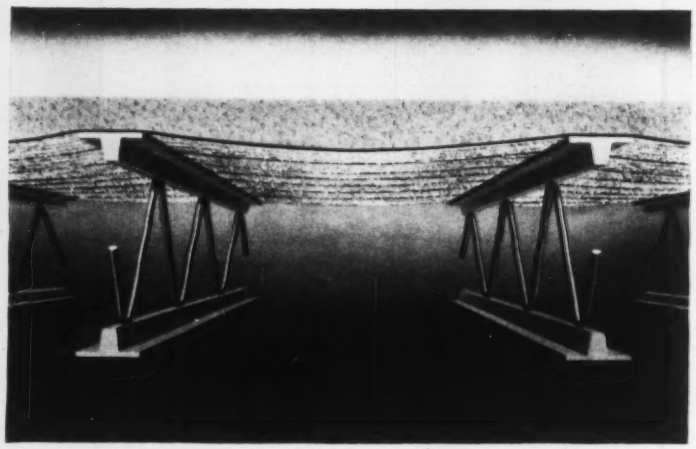

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Gold Bond ⅜″ Rib Lath Centering goes up fast and provides both a pouring form and rigid reinforcement for short-span concrete roof and floor slabs. When concrete is poured, this multi-ribbed lath gives strength where tensions are greatest... at the bottom of slab.

Workmen just lay the big— 27″ x 96″—sheets flat, lap the edges and fasten them to joists with clips. Thumb pressure is enough to lock lath to joist—no wire tying necessary. For more information on this time-saving system, ask your Gold Bond® representative or write Dept. EN-129.

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Storage, Surge Control Costs Compared

Contract for ten steel surge tanks averaging $67,911 per mg, and for two steel ground storage reservoirs averaging $29,443 per mg, went to Hammond Iron Works, Birmingham, Ala., at $634,001, 9.4% under the engineer's estimate and 4.4% under the second bid.

This storage and surge control of an industrial water system, is for the Industrial Water Board of Birmingham. J. W. Goodwin Engineering Co., Birmingham, is the consultant. William Payne, Jr. is office engineer of the Industrial Water Board.

The seven tank sites are widely separated from each other in relatively wild, inaccessible country. Each of the ten tanks is 35 ft in dia and 70 ft high, with 500,000 gal capacity. Each of the two 5 mg steel reservoirs is 147 ft in dia and 41 ft 4 in. high.

Site work has been sublet to Sullivan, Long & Haggerty, Birmingham. Its cost is included, along with concrete for foundations, headwalls, blocking and pipe collar in these costs per installations:

Site	No. of tanks	Capacity each tank gals.	Total Capacity	Total Cost
Surge Tanks				
#1	2	500,000	1 mg	$68,682.50
#2	2	500,000	1 mg	71,378.50
#3	2	500,000	1 mg	63,415.50
#4	2	500,000	1 mg	69,382.50
#5	2	500,000	1 mg	66,695.50
Reservoirs				
Cane Creek	1		5 mg	147,106.75
Putnam Sta	1		5 mg	147,339.50
Total cost				$634,000.75

Class A and B concrete must attain a compressive strength of 4,000 psi.

Boiler makers are paid a minimum wage of $3.60. Prevailing wages in Birmingham include: tractor operator $3.18; power crane & shovel operators $3.18; common laborers $1.95.

The bidding went like this:

1C Hammond Iron Works, Birmingham	$634,001
2 Pittsburgh-Des Moines Steel Co	663,377
6 Graver Tank & Mfg. Co., E. Chicago, Ind.	703,780
EE J. W. Goodwin Engr. Co., Birmingham	700,000

Bids: 8-19-59 Items	Unit	Quantity	Unit Prices 1C	2
Exc, uncl, surge tank site				
#1	cy	400	$4.00	$4.00
2	cy	400	4.00	3.95
3	cy	360	3.85	3.85
4	cy	400	4.05	4.05
5	cy	300	4.05	4.05
reserv site, Cane Creek	cy	140	14.10	14.10
Putnam Sta	cy	160	3.55	3.55
Slag or cr stn level crse, Cane Creek	cy	1,250	8.25	8.25
Putnam Station	cy	1,100	9.20	9.70
Conc, cl A, fndns & headwalls, site #1 2 & 3 (460 cy each)	cy	1,380	31.60	33.25
#4	cy	460	33.35	35.00
#5	cy	460	28.60	30.25
Cane Creek	cy	95*	95.25	96.90
Putnam Station	cy	95	92.10	93.75

Bids: 8-18-59 Items	Unit	Quantity	Unit Prices 1C	2
Cone, cl B, for blocking & pipe collar, site #1, 2, 3, 4 & 5 (5 cy each)	cy	25	$29.50	$29.50
Cane Creek	cy	25**	29.50	29.50
Putnam Station	cy	10	29.50	29.50

* Incl conc for overflow box.
** For blocking & leveling
Completion schedule: 385 cal days.
Liquidated damages: $2,000 day.

Water Table Is Problem On Alaska Sanitary Sewers

Difficult site conditions confront the contractor on this 5.4 miles of sanitary sewer construction in Anchorage, Alaska. It's an extension of the existing collection system into the previously unserved South Mt. View area of the city. A high water table is anticipated on approximately 30% of the project and a medium water table on approximately 40%. And there will be over a half mile of ditch more than 15 ft deep.

Three of these five competing contractors submitted bids on the Alternate A, concrete pipe, and all five on Alternate B asbestos cement pipe. The city's award at $240,985 to Stoen Construction Co., Seattle, Wash., was on the concrete pipe. It was 7.6% below the engineer's estimate.

Standard and extra strength concrete pipe must conform to ASTM specifications C 14, and reinforced concrete pipe must be C 76-57T.

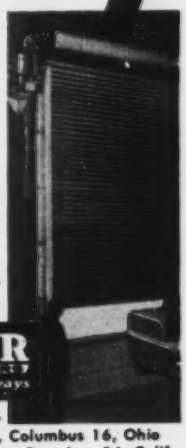
The bidding included:

	Alt. A Conc. Pipe	Alt. B Asb. Cmt. Pipe
1C Stoen Constr. Co., Seattle, Wash	$240,985	$249,170
2 Inlet Constr. Co., Anchorage	258,081	250,848
3 Walter L. Wilson Co., Anchorage	290,028	
5 Walter L. Wilson Co., Anchorage		292,990
EE City Engineer, Anchorage	260,729	260,729

Bids: 7-24-59 Items	Unit	Quantity	Unit Prices 1C	2
Excavation & bkfl, 0-10'	lf	21,474	$1.90	$2.15
10-15'	lf	4,345	2.40	2.45
15-20'	lf	2,580	3.00	3.40
20-25'	lf	375	4.10	7.00
CIP in place, 8"	lf	120	8.00	8.00
MH, std, 0-10' depth constr	ea	94	500.00	510.00
additional depth	lf	105	40.00	40.00
Cleanout, in place constr	ea	13	160.00	70.00
Conn to existing manhole	ea	1	70.00	50.00
drop sewers	ea	3	250.00	125.00
existing sewer service	ea	10	200.00	200.00
Remov & dispos unsuit matl from trench & repl w grav	cy	200	3.00	2.50
Remov & dispos soil from sts	cy	100	3.00	2.00
Haul & spread pit run gravel	cy	300	3.00	2.00
Alt. A concrete pipe, in pl, 8"	lf	23,109	3.40	3.50
10" extra strength	lf	707	4.85	5.25
15"	lf	642	6.50	6.65
18" extra strength	lf	3,521	8.15	10.20
18" reinforced SP	lf	675	10.00	10.90
Alt. B asbestos cement pipe, 8", class I	lf	23,109	3.50	3.00
10", class I	lf	707	4.40	4.00
14", class I	lf	642	6.00	6.00
18", class II	lf	4,196	10.00	10.00

Commence: 8-6-59. Completion schedule: 90 cal days.
Liquidated damages: $50 day.

Kinnear Rolling Doors



Heavy galvanizing—1.25 ounces of pure zinc per sq. ft. of metal, by ASTM standards—gives Kinnear Steel Rolling Doors many extra years of carefree service life. And Kinnear's special Paint Bond prepares the zinc surfaces for quick, thorough, lasting paint adhesion. Insist on Kinnear Doors.

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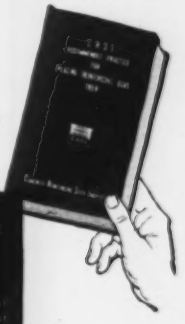

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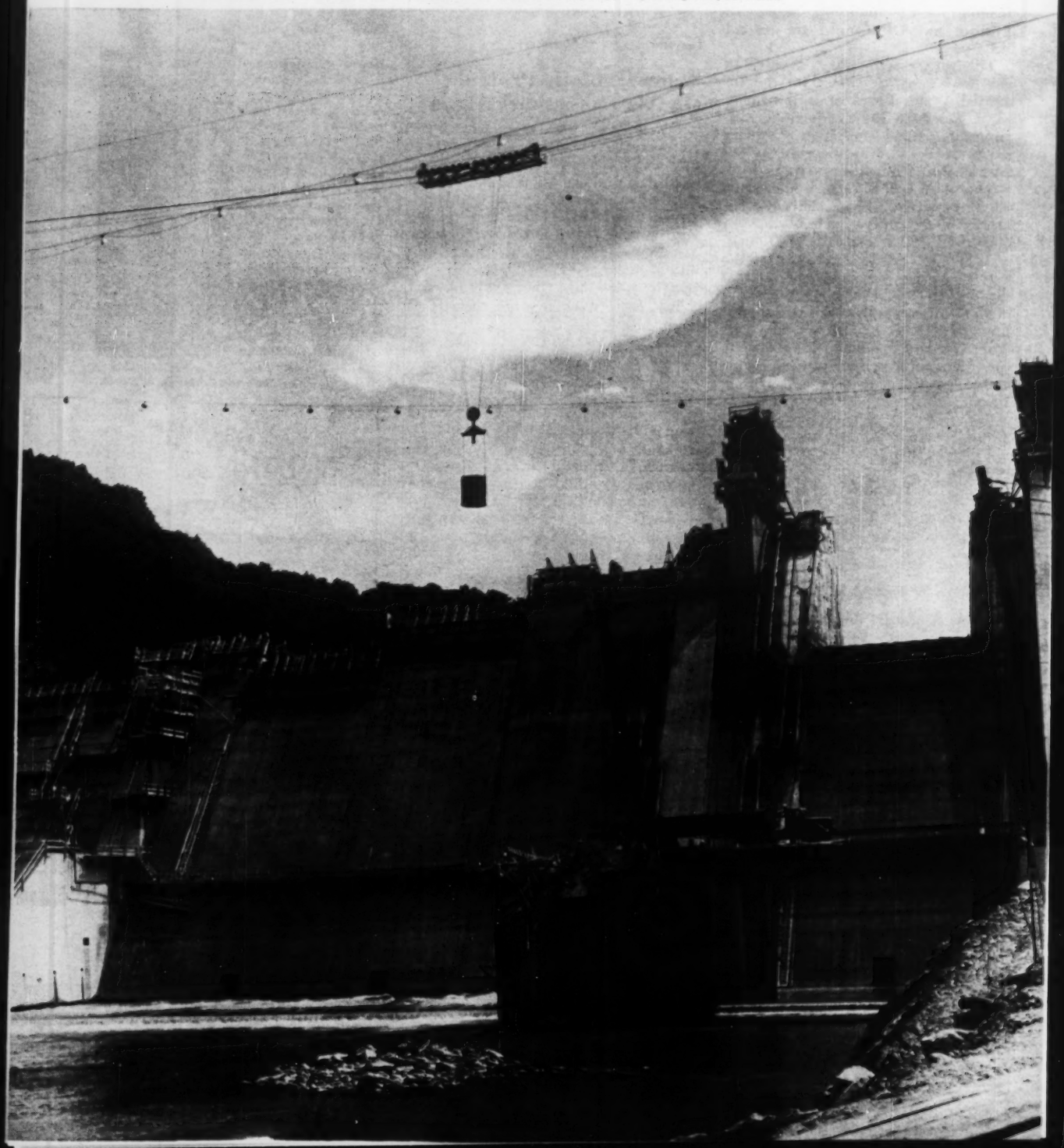
USS TIGER BRAND—AMERICA'S NO. 1 WIRE ROPE

607,000 cubic yards of concrete delivered by

SUTTON DAM—One of the largest flood control dams in eastern United States, located on the Elk River about 80 miles from Charleston, West Virginia. Designed and built under the direction of U.S. Army Corps of Engineers, Huntington, West Virginia. Contractors: Joint venture between Arundel, Dixon-Hunkin. General Superintendent for contractors, Jay Hay; Project Engineer, Ed. Hahn.



"air express" on USS Tiger Brand Tramway Cable

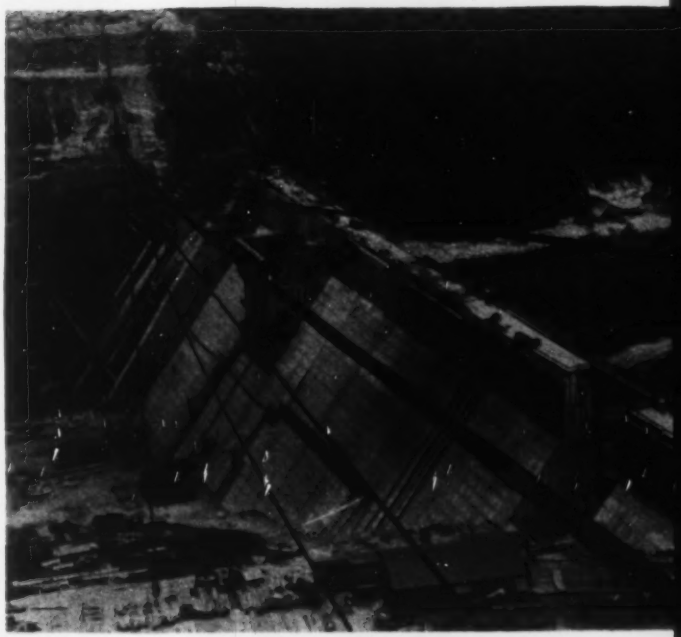
Every 3½ minutes this cableway bucket pours another load of "mud" into the mammoth Sutton Dam near Charleston, West Virginia. They're pouring at the rate of 9,000 cubic yards a week—fast time for one 8-yard bucket. When finished, the dam will contain about 607,000 cubic yards of concrete.

The main "gut" is a Tiger Brand 3-inch Locked Coil Tramway Cable 1,700 feet long. It stretches between one fixed tower and one *moveable* tower so that the bucket can reach any part of the dam. This cable was bought new for the job and from all indications will still be serviceable when the dam is completed. Other Tiger Brand Locked Coil Cables have been used on two or more big dams before replacement was necessary.

All over this project, Tiger Brand Wire Rope is doing a stupendous job. On one of the more critical applications, a 3,920-foot endless rope is used to pull the carriage assembly. Because of the hard wear this particular rope must take, they used a 1⅛" 6 x 30 flattened strand rope made of tough Monitor Improved Plow Steel.

Tiger Brand Wire Rope was also used for the hoist line, button line and take-up line, largely because of its excellent performance on previous dams such as Mt. Morris and Shasta. Mr. Lamar Pearce, Cableway Superintendent, who has had a world of experience on big dams, uses Tiger Brand more than any other make. For more information on wire rope, write American Steel & Wire, Dept. 9346, 614 Superior Ave., N.W., Cleveland 13, Ohio.

USS and Tiger Brand are registered trademarks



Main Gut—USS Tiger Brand 3-inch Locked Coil Cable with smooth surface for efficient operation. Interlocked construction holds each wire in its proper position.

Lamar Pearce, Cableway Superintendent, who knows from experience that Tiger Brand Wire Rope is safe and dependable.

Why Tiger Brand is your best buy

1. It is made by a company that maintains the most complete research and manufacturing facilities in the steel industry.

2. It is designed by one of the country's most capable staffs of wire rope engineers. It is serviced by thoroughly experienced field representatives always ready with their assistance.

3. Every type of Tiger Brand Wire Rope is designed for specific applications. *You* get the *right* rope for the job.

4. It is made by *one* company, U.S. Steel, and every step of production from ore to finished product is carefully controlled and supervised to guarantee *one* high standard of quality.

5. Tiger Brand Wire Rope is manufactured by the foremost single wire rope producer in the country.

◀ **Concrete delivered by aerial cableway**—the cheapest and fastest way to haul materials needed for the dam.

American Steel & Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

Drillers get "more hole per hour with a REICHdrill" because . . .

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4. **In and out of the hole faster** because no kelly is required.

5. **Operator can drill up as well as down** should bit become stuck.

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Division: Chicago Pneumatic Tool Company

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REICHdrill Model C-750 Crawler-mounted unit. Hole sizes to 9" diameter. Down pressure to 45,000 lbs.

Labor and Materials Prices

Monthly Market Quotations by ENR Field Reporters

HOURLY WAGE RATES—Base rate + fringe benefits

	Common Labor: Building	Common Labor: Heavy Const	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Truck drivers: 1½ T	Truck drivers: under 4 cy	Truck drivers: over 4 cy
Atlanta	$1.825	$1.825	$3.85	$3.20	$3.45+7½¢	$3.325	$3.315*B*	$3.50+10¢	$3.70+20¢	$1.825	$1.925	$2.175*B*
Baltimore	2.20+7½¢	2.20+7½¢	4.10+10¢	3.30+7½¢*f*	3.90+7½¢	3.35/4.05+10¢*A*	3.80+7½¢	3.75+7½¢	3.74+9½¢	2.15+7½¢	2.15+7½¢	2.25+7½¢
Birmingham	1.85	1.95	3.95	3.15	3.45+10¢*mn*	3.18	3.27	3.65	3.47+10¢*RpC*	1.90	2.10	2.35
Boston	2.65+10¢	2.55+10¢	3.80+20¢*F*	3.55+10¢*E*	4.02+20¢	3.90+10¢	3.65+45¢	3.90+25¢	3.75+25¢	2.70+8¢	2.70+8¢	2.70+8¢
Chicago	3.02½+7½¢	3.02½+7½¢	4.07½+7½¢	3.75+20¢*o*	4.15+16¢*m*	3.75+5¢	3.95+23¢	4.10	3.95+24¢	2.48+15¢		
Cincinnati	2.75	2.65	3.90+10¢	3.72½*D*	3.80+10¢	3.475/3.70*A*	3.725+.04	3.92+39½*B*	3.95+9½¢	2.85+62½¢*D*	2.65+2½¢	2.75+6½¢
Cleveland	3.25*b*	3.165*b*	3.965+10¢*b*	3.99*b*	3.89+10¢*b*	3.99*b*	3.99*a*	4.05*b*	3.79+20¢*bB*	2.82+15¢*a*	2.82+15¢*a*	2.82+15¢*a*
Dallas	1.80	1.80	3.95	3.35*b*	3.425+7½¢	3.45*B*	3.75+13¢*E*	3.50+7½¢	3.575+8½¢	1.80/2.625	1.80/2.625	1.80/2.625
Denver	2.25	2.25	3.90	3.50	3.41+7½¢	3.15	3.625+12¢	3.75+14¢	3.80+10¢	2.30	2.50	2.65
Detroit	2.80+42¢	2.80+42¢	3.90+30¢	3.55+42¢	3.90+22½¢	3.55+36¢	3.66+34¢	3.90+44	3.835+17½¢	2.95	2.95	2.95
Kansas City	2.455	2.505	3.95	3.50	3.55	3.445	3.75	3.75+29¢	3.60+9½¢	2.43	2.43	2.505
Los Angeles	2.88+10¢	2.88+10¢	4.00+25¢*E*	3.60+20¢	4.07½+23½¢	3.61+15¢	4.125+42½¢	4.40+44	4.10+52¢*B*	3.15½+10¢	3.15½+10¢	3.345+10¢
Minneapolis	2.70	2.70	3.875	3.45	3.62	3.45	3.40+33¢	3.55+39¢	3.62+20¢	2.70	2.70*d*	2.85
New Orleans	1.85¢	1.85¢	3.675+7½¢*d*	3.20*d*	3.50+7½¢*d*	3.325+7½¢*d*	3.19+5¢*jk*	3.675+7½¢	3.60+15¢*dl*	2.675+7½¢*d*	2.675+7½¢*d*	2.675+7½¢*d*
New York	3.30+26¢*c*	3.30+26¢*c*	4.80+44¢	4.40+35¢*k*	4.60+47¢*cj*	4.65+37¢	4.50+62¢	3.90+1.272*R*	4.50+54¢	2.35+22½¢	3.40+28½¢	3.40+28½¢
Philadelphia	R* 2.50	2.40+10¢	4.10+17¢	3.785	4.30+23¢	3.935/4.215+10¢*A*	4.15+15¢	4.37½+16¢	4.10+31½¢	2.45+15	2.45+15½¢	2.45+15
Pittsburgh	2.575+20¢	2.425+20¢	4.30+20¢	3.775+20¢	4.15+20¢	3.73+20¢	3.95+20¢	4.35+32½¢	4.00+20¢	2.37+20¢	2.51+20¢	2.61+20¢
St. Louis	2.775+10¢	2.775+10¢	4.05+32½¢	3.725+10¢*c*	3.75+7½¢	3.825	3.90+07½¢	4.11+31¢	4.07½+20¢	2.80+12½¢	2.80+12½¢	2.80+12½¢
San Francisco	2.865+10¢	2.865+10¢	4.25+42½¢	3.55+30½¢	4.075+22½¢	3.405+10¢	3.79+63¢	4.22+29¢	4.14+54¢	2.81+20¢	2.75+20	2.89+20¢
Seattle	2.85+10¢	2.85+10¢	4.15+10¢	3.32+10¢	3.59+10¢	3.59+20¢	3.57+30¢	3.80+26¢ *B*	3.81+24¢	3.15½+20¢	3.15+20¢	3.35+20¢
Montreal	1.65+4¢*q*	1.65+4¢*q*	2.45+5¢*q*	2.25+5¢*q*	2.45+5¢	2.35+5¢	2.45+5¢	2.35+5¢	2.47+5¢*n*	1.65+4¢	1.65+4¢	1.65+4¢
Toronto	1.80+7¢	1.80+7¢	3.00+12¢	2.80+12¢	2.85+11¢	3.05+12¢	3.00+20¢	3.30+13¢	3.20+13¢	1.90+14½¢	1.90+14½¢	1.90+14½¢

	Tractor Operators—Incl. bulldozers: 34–49 hp	70–100 hp	100 & over	Tractor scraper 15–16 cy	Power cranes & shovels: ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$2.925	$3.00	$3.00	$2.85	$3.375	$3.525	$2.85	$2.775	$1.925
Baltimore	3.65+10¢	3.65+10¢	3.65+10¢	3.65+10¢	4.05+10¢	4.05+10¢	3.65+10¢	3.25+10¢	2.25+7½¢
Birmingham	3.18	3.18	3.18	3.18	3.18	3.18	3.18	2.77	2.05
Boston	3.52½+20¢	3.52½+20¢	3.52½+20¢	3.52½+20¢	3.90+20¢	3.90+20¢	3.52½+20¢	3.45+20¢	2.80+10¢
Chicago	3.50+5¢	3.65+5¢	3.30+5¢	3.30+5¢	4.10+5¢*R*	4.10+5¢*R*	3.50+5¢	3.40+5¢	3.70+5¢
Cincinnati	3.475+10¢	3.475+10¢	3.475+10¢	3.475+10¢	3.475+10¢	3.70+10¢	3.70+10¢	3.70+10¢	3.70+10¢
Cleveland	3.74*b*	3.74*b*	3.74*b*	3.74*b*	3.99*b*	3.99*b*	3.74*b*	3.615*b*	3.615*b*
Dallas	1.80/2.625	1.80/2.625	1.80/2.625	1.80/2.625	3.175*kB*	3.175*kB*	1.80/2.625	1.95	1.95
Denver	2.40	3.00	3.00	3.00	3.15	3.15	3.00	3.00	2.53
Detroit	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.275+15¢	2.93+34¢
Kansas City	2.75	3.20	3.20	3.20	3.445	3.445	3.20	3.20	2.55
Los Angeles	3.91+15¢	3.91+15¢	3.91+15¢	4.01+15¢	4.01+15¢	4.01+15¢	4.01+15¢	3.13+15¢	3.09+10¢
Minneapolis	3.08	3.30		3.30	3.52	3.78	3.08	2.97	2.85
New Orleans	3.325+7½¢*d*	3.325+7½¢*d*	3.325+7½¢*d*	3.325+7½¢*d*	3.325+7½¢*d*	3.325+7½¢*d*	3.325+7½¢*d*	2.675+7½¢*d*	1.95¢
New York	4.025+32¢	4.025+32¢	4.025+32¢	4.15+33¢	4.90+39¢	4.90+39¢*k*	4.15+33¢	4.15+33¢	4.15+21¢
Philadelphia	R* 3.52+10	3.665+10	3.665+10	3.79+10	4.215+10	4.215+10	3.765+10	3.41+10	2.35
Pittsburgh	3.44+10¢	3.44+10¢	3.44+10¢	3.44+10¢	3.64+10¢	3.64+10¢	3.64+10¢	3.15+10¢	2.30+20¢
St. Louis	2.825	3.825	3.825	3.825	3.825	3.825	3.82*b*	3.275	3.275
San Francisco	3.70+20¢	3.70+20¢	3.70+20¢	3.70+20¢	3.85+20¢	3.85+20¢	3.75+20¢	3.10+20¢	2.955+20¢
Seattle	3.56+20¢	3.56+20¢	3.56+20¢	3.56+20¢	3.93+20¢	3.93+20¢	3.65+20¢	3.29+20¢	3.05+10¢
Montreal	q 1.85+4¢	2.08+5¢	2.08+5¢	2.08+5¢	2.35+5¢	2.35+5¢	2.08+5¢	1.95+4¢	1.95+4¢
Toronto	2.30+10¢	2.40+10¢	2.40+10¢	2.40+10¢	2.90+12¢	3.05+12¢	2.70+11¢	2.40+10¢	2.40+10¢

ENR Skilled Average (Bricklayers, Carpenters, Iron Workers): $3.897. ENR Common Average $2.61

Description of fringe benefits last appeared Feb. 26; will next appear in Sept. 17 Cost Issue. *A 1–2 drum. *B revised eff. July 1 *C revised eff. Aug. 1 *D revised eff. Sept. 1 *E revised eff. Oct. 1 *F revised eff. May 1

DEFERRED WAGE INCREASES UNDER PRESENT CONTRACTS: 1960: a May 1; 10¢ b May 1; 12¢ k May 1; 8¢ l May 1; 10¢ m Jan. 1; 15¢ n Jul. 1; 5¢ o Jun. 30; 22½¢ s Apr. 1; 15¢ **1959:** c Dec. 1; 10¢ d Nov. 1; 10¢ e Nov. 1; 5¢.

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

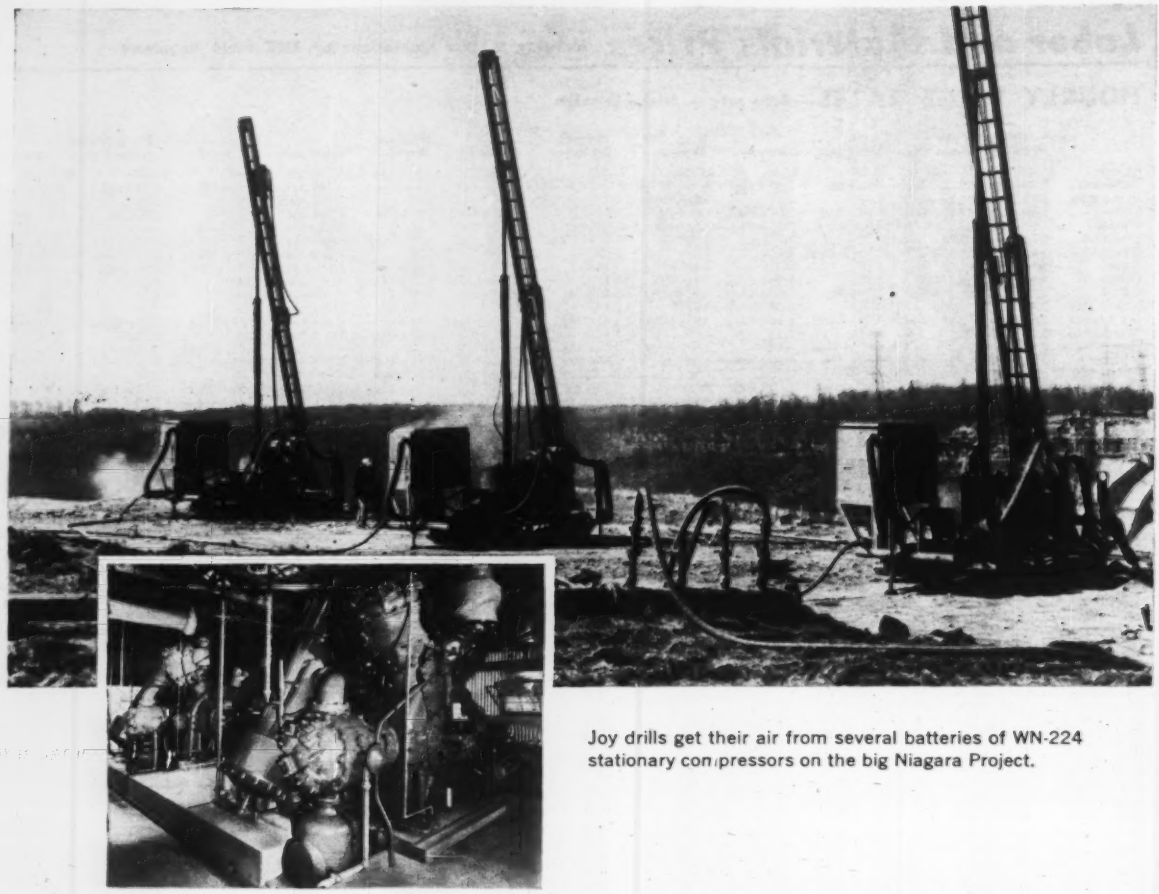
	Gypsum Plaster Board: tapered edge per Msq ft ½"	⅝"	Gypsum Board Lath: plain or perf per Msq ft ⅜" x 16" x 48"	Gypsum Sheathing: tongue & groove per Msq ft ½" x 2' x 8'	Fiber Board Sheathing: asph impreg & coat per Msq ft ½" sq ed	¾" T&G	Fiber Board Insulation: sq edge, paint per Msq ft ½"	Mineral Wool Insulation: loose, per 40-lb bag a	3" batts per M sf	Glass Fiber Insulation: loose, per 40-lb bag	3" batts per M sf	Aluminum Foil: 80# Kraft 1 side foil per roll of 250 s. f.	Expandible Blanket 2 layers foil per Msq ft
Atlanta	$65.00*F*	$55.00*F*	$42.50*F*	$68.00*F*	$72.00*F*	$127.00*F*	$75.00*F*	1.59*z*	$70.00*F*	$2.00	$80.00*F*	$4.77*qv*	
Baltimore	51.70	45.55	34.25	55.35	65.00	108.50	69.00	1.30*F*	66.50*F*	1.50*F*	45.00*F*	4.00*F*	$33.50*F*
Birmingham	68.90*H*	57.00*H*	47.77*H*	75.00*H*	67.50*H*	140.50*H*	83.50*H*	1.40	70.00	1.60	75.00	3.77*gG*	
Boston	60.00*mH*	50.00*mH*	36.00*mH*	60.00*mH*	65.00*H*	120.00*H*	79.00*knH*	1.40*kH*	75.00*H*		75.00*H*	5.30*zHS*	53.50*qH*
Chicago	67.00	54.00	45.00	62.00	87.00	123.00	87.00	1.85	80.00		63.65	5.25*j*	
Cincinnati	52.50*wH*	42.85*wH*	33.05*wH*	51.16*wH*	77.00*wH*	125.00*wH*	72.50*wH*	1.45*wH*	62.50*wH*	1.45*wH*	62.50*wH*	3.28*jwJ*	50.00*wJ*
Cleveland	62.00*CF*	56.50*CF*	41.50*CF*	65.00*CF*	80.00*CF*	129.00*CF*	80.00*CF*	1.35/1.50*H*	72.00*H*		63.75	17.50*isJ*	55.00*J*
Dallas	56.25	46.85	42.50	56.25	68.75	118.00	68.75	2.00	65.69	1.45	70.67	5.00*gAG*	45.00
Denver	66.50*H*	58.50*H*	45.00*H*	68.75*H*	84.00*H*	130.00*H*	84.50	1.50*b*	65.00*wb*	1.75*b*	65.00*a*	5.25	48.65
Detroit	66.00*K*	55.00*K*	43.00*K*	65.00*K*	62.50*DK*	103.50*DK*	62.50*DK*	1.30*b*	50.00	1.95*b*	88.00		
Kansas City	72.00*H*	62.00*H*	45.00*H*		75.00*H*	122.00*H*	80.00*H*	1.40*H*	75.00*H*	1.80*H*	75.00*H*	3.60*d*	53.98
Los Angeles	Q 66.00*F*	60.50*F*	0.33*xF*	64.50*F*	75.00*F*	125.00*F*	80.00*F*	76.00*RxF*	83.00*F*	1.35*x*	64.00	4.40*x*	7.45*V*
Minneapolis	F 75.00*F*	65.00*F*	0.41*xL*	75.00*F*	85.00*F*	130.00*F*	78.00*F*	2.25*yF*	80.00*F*	2.10*F*	80.00*F*	4.25*F*	
Montreal	58.00*M*	49.30*M*	37.41 50.*M*	53.00*M*	64.75*M*		58.50*M*	1.50*M*	66.00*M*	1.50*M*	66.00*M*	9.00*qM*	56.00*M*
New Orleans	57.00*H*	52.00*H*	45.00*H*	60.00*H*	67.00*H*	140.00*H*	80.00*H*	2.00*L*	70.00*				52.12*U*
New York	65.00*H*	55.00*H*	42.50*H*	65.50*H*	78.00	124.00	78.00	1.55*b*	68.50*k*			4.38*cH*	40.00*cH*
Philadelphia	*HR** 52.50	46.60	36.00	52.00	70.00	105.00	70.00	1.05	50.00	1.40	50.00	5.25	60.00
Pittsburgh	74.00*K*	65.00*K*	40.00*K*	63.00*K*	63.00*K*	103.35*K*	58.10*K*	1.10*xK*	55.00*K*	1.10*xK*	55.50*K*	4.20*uqK*	38.50*K*
St. Louis	65.00*HO*	55.00*HO*	40.00*HO*	70.00*HO*	76.00*HO*	120.00*HO*	90.00*HO*	1.35*uHO*	85.00*HO*	2.00*PHO*	74.00*HO*	4.50*uqHO*	
San Francisco	60.00*F*	49.00*F*	0.36*xF*	61.00*F*	68.00*F*	109.00*F*	67.00*F*	1.75*F*	66.50*F*	1.75*F*	66.50*F*	5.10	60.00*F*
Seattle	66.80*K*	57.65*K*	51.05*K*	65.00*K*	74.50*K*	125.00*K*	73.50*K*	1.15*xK*	58.00*K*	1.90*pK*	51.00*tKk*	4.25*K*	46.50*EK*
Toronto	58.00	50.00	38.00*L*	64.50	61.50*T*		69.00*T*	1.65	65.50		65.50	14.75*a*	46.00

*F.o.b. warehouse. *a Semi thick. *b 30-lb bag. *c 3 layers of foil: $54.50. *d 40-lb kraft paper, 5 Msf, 100-500 rolls. *e 20-sq ft bag, 4" thick. *f Full trailer loads. *g 80-lb kraft paper backing 400 rolls or over. *h LCL. *i 40-lb bag. *j 80-lb. *k 2-in. *l 2". *m 8 to 10 ton quantities. *n Distributor's siding. *p Per Msf roll. *q 32-lb bag. *r 500 sf. *s 35-lb bag. *t 25-lb bag *u Flame proof $75. *v 5000 sf quantity. *w F.o.b. city. *x Sq. yd. *y 30-lb bag. *z Spun rock wool. *A 650 sf. *B ton. *C F.o.b. plant, freight allowed. *D CL. *E 10 Msf. *F less 2%, disc, 10th. *G 1½ of 1%, 10 days. *H 2% disc, 10 days. *J 1% disc, 10 days. *K less 2% for cash. *L 5% disc, 10th mo. *M fed. tax incl. *N 1% disc, 10 days. *P 50 lb. bags, *Q add 4% sales tax. *R revised. *S 45 lb. *T less 2%, 30 days. *U lots of 2606 sq. ft. *V 250 sf roll. * Philadelphia prices revised; watch for analysis.

MEXICO CITY WAGES & PRICES

WAGES, av per week, 8 hr day (pesos)		Sept '59	Oct. '59
Common labor,	building (peons)	87.50	87.50
	heavy const (peons)	87.50	87.50
Skilled labor,	carpenters 1 cl	175.00	175.00
	bricklayers 1 cl	210.00	210.00
	struct. ironworkers	280.00	280.00

MATERIALS PRICES, F.o.b. City (pesos)		Sept '59	Oct. '59
Struct. steel shapes, fob Monterey			
I-beams, 3 x 3 x 4"	per metric ton	2400.00	2400.00
Reinf. steel, corrugated rods, per ton			
¼"–½" x 11 meters		1900.00	1900.00
¾"–1" x 11 meters		1900.00	1900.00
Gravel, truckload, per cu meter			
Blue gravel		25.00	30.00
Cement, std. port. (Tolteca)		2.40	2.40
Lumber, 2"x4" 1st class pine, per M sq. ft.		2200.00	2100.00
2"x4" 2nd class pine, per M sq. ft.		1900.00	1800.00



Joy drills get their air from several batteries of WN-224 stationary compressors on the big Niagara Project.

Contractors at Niagara Look for Low Cost Air ...Choose 600 HP Joy Stationary Compressors

On large construction jobs the cost of compressed air is an important item. And on jobs that run around the clock for many months, reliability is a must. That's why contractors at Niagara are using twelve of the Joy WN-224's shown above. They provide a total of 44,000 cfm at far lower cost than could have been realized with portable compressors.

Joy stationary compressors are shipped from the factory as a package, completely assembled. On arrival at the job site they are bolted down to a simple, relatively light foundation. What's more this package design makes it possible to move from site to site much more easily than with other stationary compressors.

If you are bidding on a large rock removal job, it will pay you to check on the cost savings possible with large Joy stationary compressors. For complete product information, write for Bulletin 320-24.

AIR MOVING EQUIPMENT FOR ALL INDUSTRY

JOY

Joy Manufacturing Company
Oliver Building, Pittsburgh 22, Pa.

In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **N. H., Portsmouth**—BUILDING WAYS—BA 12/18—Dist. P. Wks. Office 495 Summer St., Boston 10, Mass. Imprv. building ways, Ways 3 and 4, Portsmouth Naval Shipyard, NBy 23015, Spec. 23015/59. $250,000-$750,000. CD 9/28.

BUILDINGS—BA

▲† **N. H., Hanover**—LABORATORY—BA On Or About 1/5—U. S. Eng., 310 State St., Springfield, Mass., Cold Regions Research and Engineering Laboratory, ENG-19-016-60-37. $2,000,000-$3,000,000. Plans deposit $50. CD 11/23.

BUILDINGS—SLC

▲ **Conn., Hartford**—SCHOOL—Archdiocese of Hartford, Supt. Schools, 125 Market St., Hartford, soon lets contract 2½ story, South Catholic High School, Camfield Ave. $1,500,000. Anthony J. DePace, 151 W. 46 St., New York, N. Y., archt. Weinberger, Frieman, Leichtman & Quinn, 20 Vesey St., New York, N. Y., engrs. Joseph R. Loring Assocs., 25 W. 45 St., New York, N. Y., mechanical engrs. CD 1/21.

BUILDINGS—LB & CA

▲ **L. & R. Constr. Co.**, 84 Main St., North Reading, Mass., LB **$1,261,630**, E-58-2 Contr. 1, DORMITORY and STUDENT UNION BLDG. and DINING HALL addn., alterations, State Teachers College, State St. and Maynard Rd., FRAMINGHAM, MASS. Commonwealth of Mass., Dpt. Educ., Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Nov. 20. CD 10/21.

▲ **Vappi & Co., Inc.**, 240 Sidney St., Cambridge, Mass., CA Approx. **$2,000,000**, MANUFACTURING PLANT, Rte. 128, WALTHAM, MASS. Clevite Transistor Products, 241 Crescent St., Waltham, Mass. Bids Nov. 16, awarded Nov. 20. CD 11/23, under LB.

Gellatly Constr. Co., 181 Sylvan Ave., Bridgeport, Conn., LB **$686,700**, (12 bidders), HIGH SCHOOL addn., alterations South Ave., NEW CANAAN, CONN. Town, Bldg. Comm., Town Hall, New Canaan, Conn. Bids Nov. 17. CD 10/14.

A. Prete, 16 Olive St., New Haven, Conn., LB **$765,340**, ACADEMIC BLDG., NEW HAVEN, CONN. Albertus Magnus College, 700 Prospect St., New Haven, Conn. Bids Nov. 10. CD 10/2.

Victor Atkins, 106 Sylvan Ave., Waterbury, Conn., LB **$893,018**, (12 bidders), Plantsville ELEMENTARY SCHOOL and North Center SCHOOL, Plantsville and Southington, SOUTHINGTON, CONN. Town, Town Hall, Southington, Conn. Bids Nov. 19. CD 10/27.
Pearce Constr. Co., Inc., 1626 Hartford Tpk., North Haven, Conn., LB **$431,000**, (2 bidders), North Center SCHOOL, (Southington, Conn.).

Hope Development Co., 41 Hope St., Stamford, Conn., CA **$726,615**, APARTMENT, Prospect St., STAMFORD, CONN. Glen Hope Realty Corp., 65 Prospect St., Stamford, Conn. Schuman & Lichtenstein, 360 Lexington Ave., New York, N. Y. and H. I. Fieldman, 415 Lexington Ave., New York, N. Y., archts. Awarded Nov. 20.

Alfred Kaskel, Roxbury Rd., Stamford, Conn., Separate Contracts, **$800,000**, 5 story, 125,000 sq. ft. 125 x 217 ft. OFFICE, air-conditioning, GARAGE, STAMFORD, CONN. CD 8/6.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **Pa., Berwyn**—BA 12/16—Tredyffrin Twp. Municipal Auth., 973 Old Lancaster Rd., Berwyn, Tredyffrin Twp., Chester Co., Contr. 1, sanitary sewers in Stafford area and Contr. 2, sanitary sewers in Trout Creek area. Plans deposit $40. Yerkes Engineering Co., 101 Charles Dr., Bryn Mawr, engr. CD 2/3.

BUILDINGS—BA

† **Md., Carderock**—BLDG. ADDN.—BA 12/16—Area P. Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C., addn. to Bldg. 17, Acoustic Data Analysis Center, David Taylor Model Basin, NBy-21543. $250,000-$500,000. CD 9/25, under Unclassified.

▲† **N. Y., West Point**—FAMILY QUARTERS—BA 1/7—U. S. Eng., 111 East 16th St., New York, Zone 3, family quarters, U. S. Military Academy, Serial No. ENG-30-075-60-35. $4,500,000. CD 9/25.

HEAVY CONSTRUCTION—LB & CA

Daniel J. Keating Co., 3917 Baring St., Phila., Pa., LB **$619,588**, est. $2,139,168, sewage treatment plant and sanitary sewerage sys., EAST STROUDSBURG, PA. East Stroudsburg Auth., East Stroudsburg, Pa. Albright & Friel, 3 Penn Center Plaza, Phila., Pa., engrs. CD 1/29/47.

BUILDINGS—LB & CA

S. Levy Co., Broadway and Everett Sts., Camden 4, N. J., CA **$562,200**, SCIENCE CLASSROOM, Glassboro State Teachers College, GLASSBORO, N. J. State Dpt. Treasury, Div. Purchases & Property, State House, Trenton, N. J. Bids Oct. 8. CD 9/14.

Jas. A. Murray, 2684 Princeton Pike, Trenton, N. J., Owner Builds, **$450,000**, two ½ story garden APARTMENTS, Berkeley Ave. and Parkside, TRENTON, N. J. Morgan Davis, 45 4th St., North Arlington, N. J., archt.

▲ **McCullough-Howard Co., Inc.**, 209 N. 16th St., Phila., Pa., CA **$3,000,000**, DEPARTMENT STORE, BROOMALL, PA. Food Fair Properties, 99 Park Ave., New York, N. Y. Thalheimer & Weitz, 1325 Walnut St., Phila., Pa., archts.

▲ **Irwin & Leighton, Inc.**, 1505 Race St., Phila., Pa., CA Over **$2,000,000**, 2 story, 277x397 ft. wing, 152x95 ft. brick, masonry, steel RESEARCH CENTER, CENTER SQUARE, PA. Philco Corp., Abbottsford Rd. and Wissohickon Ave., Phila., Pa. CD 2/20.

▲ **Cairnhill Corp.**, 1424 York Rd., Abington, Pa., Separate Contracts, **$1,250,000**, RESIDENTIAL DEVELOPMENT (80), Koffel Rd., HATFIELD, PA.

Joseph A. Casacio & Co., 2836 Cottman St., Phila., Pa., CA **$891,000**, RESIDENTIAL DEVELOPMENT (74), Winchester St., etc., PHILA., PA. Evergreen Park Manor Corp., 2836 Cottman St., Phila., Pa. Barton & Martin, 12 S. 12th St., Phila., Pa., archts.

Joseph R. Farrell, Inc., West Conshohocken, Pa., CA **$500,000**, 2 story, 150x182 ft., brick masonry, steel POSTULATE BLDG., PHILA., PA. Sisters of St. Joseph, Sunset and Norwood Aves., Phila.; Pa. Peter F. Getz, 22 Garrett Rd., Upper Darby, Pa., archt. McCormick, Taylor Assocs., Suburban Station Bldg., Phila., Pa., engr.

Pinebrook Constr. Co., 820 Cottiman Ave., Phila., Pa. Separate Contracts, **$650,000**, RESIDENTIAL DEVELOPMENT (40), Medway Rd., etc., PHILA., PA.

W. J. Chappell, 1346 Good Hope Rd. S.E., Wash., D. C. LB **$596,777** (9 bidders), No. 13, ENGINE CO. and No. 10 TRUCK CO. FIREHOUSE, 6 and E Sts. S.W. and POLICE PRECINCT No. 4, 4 St. between E. and School Sts. S.W., WASH., D. C. D. C. Govt., Buildings & Grounds, 499 Pa. Ave. N.W., Wash., D. C. Bids Nov. 19. CD 10/23.

Knowlton Constr. Co., Bellefontaine, O., CA **$600,000**, DEPARTMENT STORE, DuPont Parkway, WILMINGTON, DEL. George S. Kaufman Realty Corp., 450 7 Ave., New York, N. Y. CD 9/17.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England — **Middle West**
Middle Atlantic — **Mississippi to Rockies**
South — **Far West**
PROPOSED WORK
Water Supply — **Public Buildings**
Sewers, Waste Disposal — **Mass Housing**
Bridges — **Commercial Buildings**
Streets & Roads — **Industrial Buildings**
Earthwork, Waterways — **Unclassified**

In Those Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Miss., Meridian**—BACHELOR OFFICERS' QUARTERS, etc.—BA 1/5—Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., bachelor officers' quarters with mess, U. S. Naval Auxiliary Air Station, NBy-27630, Spec. 27630/59. Over $1,000,000. Plans deposit $145. CD 9/8/58.

▲† **Miss., Meridian**—ADMINISTRATION BLDG., etc.—BA 1/12—Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., administration bldg., dispensary ground school and link trainer bldg. and cold storage addn., Naval Auxiliary Air Station, NBy-25500, Spec. 25500. Over $1,000,000. Plans deposit $160. CD 9/8/58.

BUILDINGS—BA

Va., Richmond—BOWLING CENTER—BA 12/1—Richmond Bowling, Inc., Falls Church, bowling center, Southside Plaza, $750,000. Anthony F. Musolino, Falls Church, archt. CD 11/18.

BUILDINGS—SLC

▲ **Fla., Palm Beach**—APARTMENT, etc.—Florida Land Investment Corp., c/o Robson & Gesbocker, archts., 927 Belvedere Rd., West Palm Beach, soon lets contract, 6 story, 90,000 sq. ft. co-operative apartment and swimming pool, air conditioning, heating, plumbing electric and parking. $1,000,000. CD 11/17.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Va. Dpt. Hys., 1221 E. Broad St., Richmond,
Virginia Stone & Constr. Co., 325 Campbell Ave., Roanoke, Va., CA **$2,125,594**, 2.21 mi. 2 lanes 24 ft. x 9 in. b. conc. from Potomac River South of Cabin John Md. to 1.54 mi. north of Rte. 123 near Old Dominion Dr. Rte. 413, State Proj. 0413-29-007-C7, Fed. Proj. I-495-5 (8) 189, Fairfax Co. Bids Nov. 10. CD 11/13, under LB.

† **NORTH CAROLINA**—Bureau P. Rds., Dpt. Commerce, 920 S. Jefferson St., Roanoke, Va.,
Asheville Contg. Co., P.O. Box 5119 Biltmore Station, Asheville, N. C., CA **$943,225** (10 bidders), Project 281 grading, tunnel, aggregate base course, etc. from Franch Broad River, 5.188 mi. to Chestnut Cove Cap, Blue Ridge Parkway. Bids Oct. 30, awarded Nov. 18. CD 11/5.

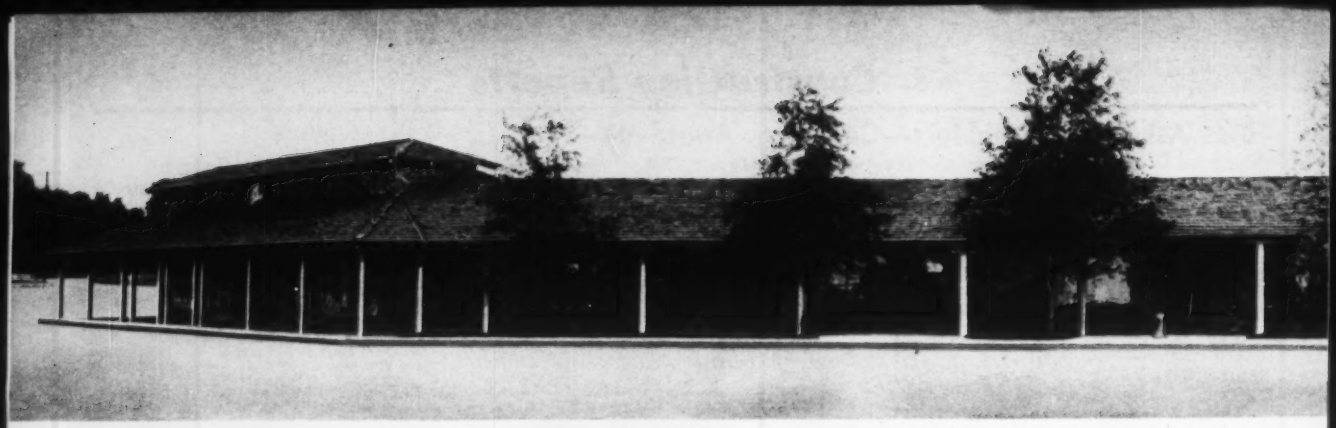
SOUTH CAROLINA—State Hy. Dpt., Hotel Columbia, Columbia, Bids opened 11/17,
S. C.—**Inland Bridge Co.**, Chester, S. C., LB **$414,080** (10 bidders), 608 ft. prestressed concrete bridge over Broad River and 912 ft. prestressed concrete bridge over Broad River and Southern R.R. on Rds. S-207 and S-229, at Peak, S. C. Docket No. 2036.271, F.A. Proj. No. S-SG-1467 (1), Fairfield and Newberry Counties; LB **$133,617** (13 bidders), 405 ft. 5 in. rein.-con. structural steel overpass over Lockwood Blvd., U.S. Rte. 17 (North Bound Lane), Charleston, S. C. Docket No. 10.442.1, F.A. Proj. U-215 (3), Charleston Co.;
S. C.—**Dickerson, Inc.**, Monroe, N. C., LB **$130,377** (13 bidders), 320 ft. prestressed concrete underpass under U.S. Rte. 17-A Int. Rte. 26 N.E. of Summerville, S. C. Docket No. 8.355.4, F.A. Proj. I-26-4 (3), Berkeley Co.;
S. C.—**General Constr. Co.**, 1815 Blanding St., Columbia, S. C., LB **$99,414** (13 bidders), 255 ft. 8½ in. rein.-con., structural steel underpass under State Rte. 61 U.S. Rte. 17 (South Bound Lane) west of Charleston, S. C. Docket No. 10.442, F.A. Proj U-215 (3), Charleston Co. CD 11/5.

SOUTH CAROLINA—State Hy. Dpt., Hotel Columbia, Columbia,
York Constr. Co., P.O. Box 68, York, S. C., CA **$626,548**, Alt. 1, stabilizer material (crushed stone-aggreg. No. 2 or No. 2-A) drainage macadam base course, b. conc. surf. 13.839 mi. U.S. Rte. 176, S.C. Dockets Nos. 42.513 and 44.316, F.A. Projs. Nos. F-207 (9) & F-2516 (7), Spartanburg and Union Counties. Bids Aug. 18. (Correction—status). CD 10/16, under LB.

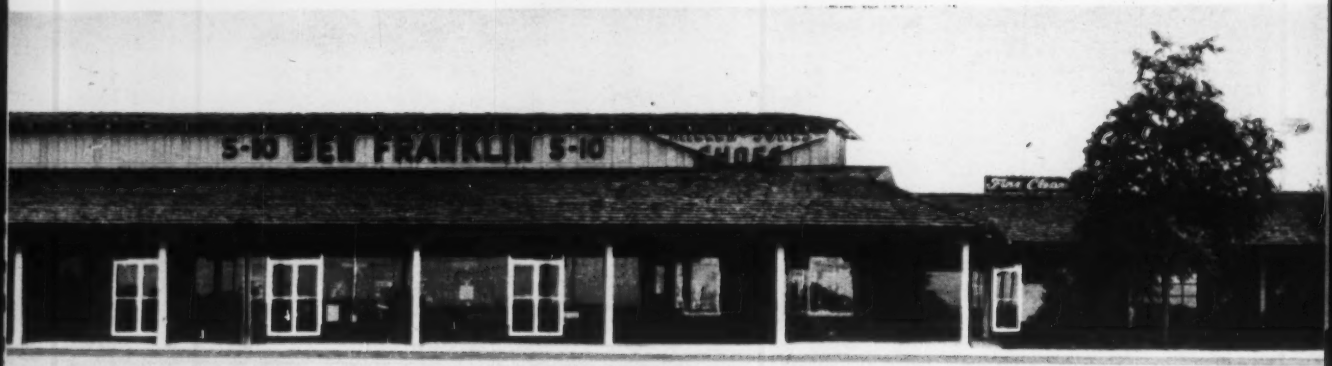
▲ **FLORIDA**—State Hy Dpt., Holland Bldg., Tallahassee, Fla.—**W. H. Armston Co., Inc.**, Dunedin, Fla., CA **$1,609,490**, 4-lane divided limerock base, b. conc. surf. course and binder course limerock base shoulders surf. tr. 5.416 mi. SR 400 FAI Proj. No. I-3-1 (21) 69, Job No. 16320-3406, Polk Co.;
Fla.—**Cone Bros. Constr. Co.**, Box 1259, Tampa 1, Fla., CA **$1,887,873**, 4-lane divided limerock base Type 1 b. conc. surf. course and binder course limerock base shoulders, surf. tr. 7.095 mi. SR 400 FAI Proj. No. 1-4-k (2) 62, Job No. 16320-3405, Polk Co. Bids Sept. 29, awarded Nov. 20. CD 10/5, under LB.

▲ **FLORIDA**—State Road Dpt., Room 228, Holland Bldg., Tallahassee,
Fla.—**Capeletti Bros., Inc. & Joe Daniel, Inc.**, Box 1247, Hialeah, Fla., LB **$803,842**, (9 bidders), 4-lane divided roadway facility, Type 1 b. conc. surf. course and binder course 0.774 mi. SR 25, State Proj. Job No. 87090-3507, Dade Co.;
Fla.—**Troup Bros., Inc.**, Box 33168, Miami 33, Fla., LB **$3,108,121**, (7 bidders), 4-lane dual roadway facility

(Continued on page 86)

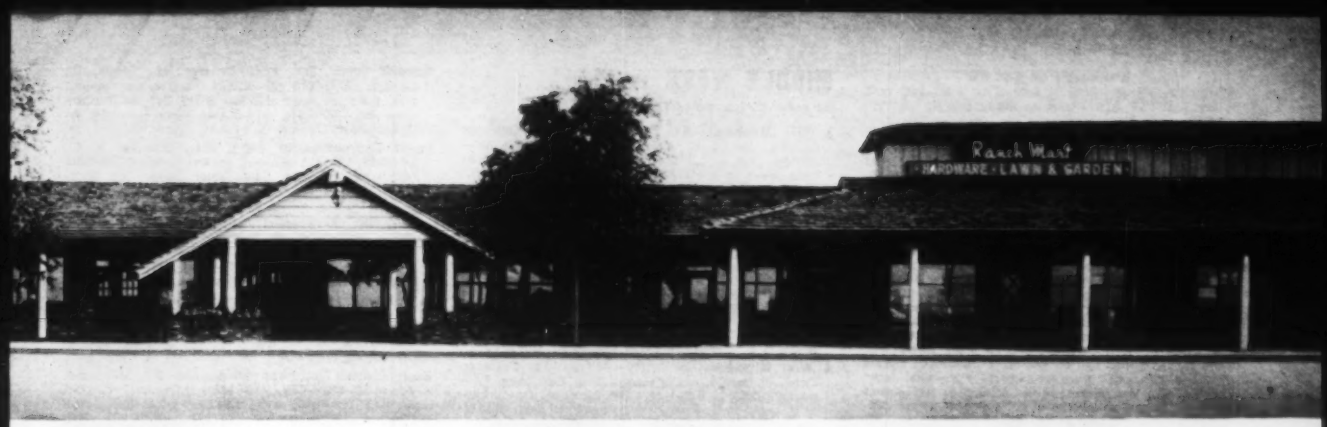


On a dry lake bed, 12 miles southwest of Kansas City, Vic Regnier built himself

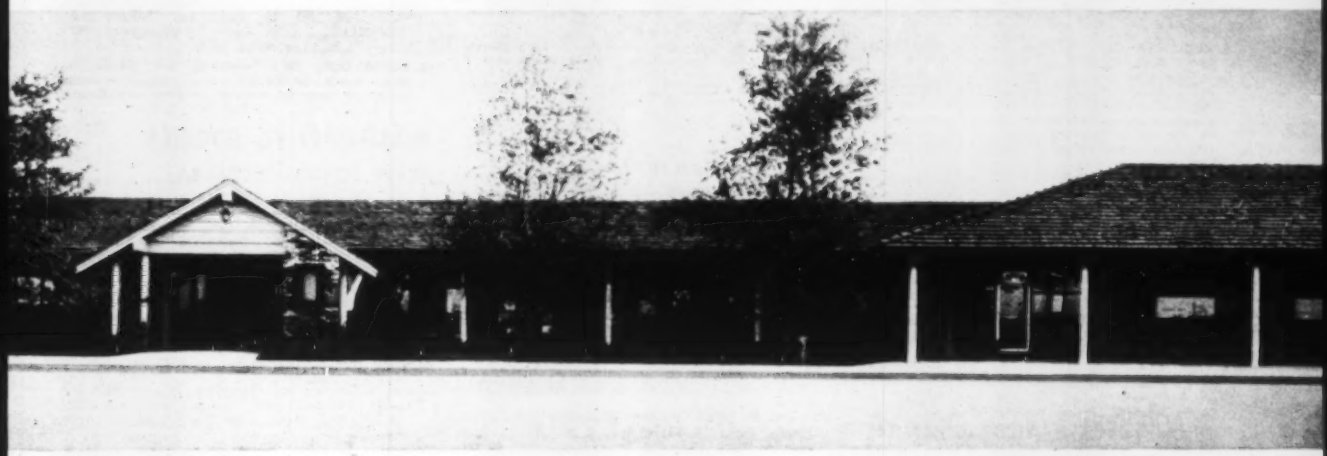


This is Phase One. It includes 21 stores, 12 offices and a 13,000 sq. ft. basement

Architect: John F. Granstedt, Kansas City, Mo. **Structural Engineers:** Uri Seiden & Associates, Kansas City
Contractor: Vic Regnier Builders, Inc., Kansas City **Structural Steel Fabricator:** Hankens Steel Erection Co., Belton, Mo.



800 feet of ranch style shopping. Its name: Ranch Mart. Its cost: $1,250,000.



auditorium. Phases Two and Three will add store and office space, plus bowling alley and large department store. Because Ranch Mart is located in the heart of the tornado belt, Regnier gave it a strong backbone of steel — 500 tons of USS Steel. "Experience has shown us," says Regnier, "that structural steel gives a building permanent strength. It's also the fastest, most economical material for tying a building together." Vic Regnier is sold on steel and U.S. Steel's ability to deliver, fast, anywhere in the country.

USS is a registered trademark

USS

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

United States Steel

(Continued from page 83)

with interchanges, limerock base, Type 1 b. conc. surf. 2,253 ft. SR 826 (Palmetto Rd.), Job No. 87260-3102, Dade Co.;

Fla.—**Cone Bros. Constr. Co.**, Box 1259, Tampa 1, Fla., LB **$920,641**, (4 bidders), limerock base type b. conc. surf. course with binder course 2.093 mi. Myrtle Ave. in Clearwater, State Proj. Job No. 15600-3150, Pinellas Co. CD 11/9.

▲ **FLORIDA**—State Road Dpt., Holland Bldg., Tallahassee,

Cleary Bros. Constr. Co., Box 6397, West Palm Beach, Fla., LB **$1,689,498**, replacing existing Shands Bridge over St. John's River, Green Cove Springs, constr. fixed span 28 ft. roadway bridge ninety-three 48 ft. spans concrete slab decks on prestressed concrete beams and prestressed concrete pile bents, twenty-four 72 ft. spans of concrete slab deck and prestressed concrete beams on concrete piers founded on prestressed concrete piling 90 ft., founded on steel piling, four 40 ft. spans with 130 ft. and 90 ft. continuous I-beam steel girder center spans on concrete piers, two hinged emergency spans of steel bridge flooring on steel beams and 2 concrete slab decks on steel beams on prestressed concrete pile bents, etc., bridge is 6,662 ft. long, SR 16, State Proj. Jobs Nos. 71100-3501 and 78060-3502, S.R. 16, Clay and St. John's Counties. CD 10/20.

▲† **Green Constr. Co.**, P.O. Box 65, Oaktown, Ind., CA **$1,220,234**, Canal 24, Section 2, Central and Southern Florida Flood Control Project near Fort Pierce, FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, Fla. Bids Nov. 3. CD 11/10, under LB.

▲ **LOUISIANA**—State Dpt. Hys., Rm. 426, Headquarters Admin. Bldg., Baton Rouge, Bids opened 11/18,

La.—**Nichols-Southern, Div. Yuba Consolidated Industries, Inc.**, 2864 Airline Hy., Baton Rouge, La., LB **$7,137,201**, (15 bidders), c. conc. pavt., grade separation structures, etc., 1.192 mi. Shreveport Expressway (Allen Ave.-Spring St.) Rte. 1-20 SP 451-01-07 FAP 1-20-1(17) Caddo Parish, CD 10/9; LB **$155,532**, (2 bidders), aggreg. type or soil cement base 4.934 mi. Rte. 1050 SP 853-05-04, 853-03-05, Tangipahoa Parish, CD 10/28.

La.—**T. L. James & Co.**, Ruston, La., LB **$110,743**, (2 bidders), bit. hot mix overlay, etc., 9.533 mi. Vivian-Milliers Bluff Bridge Hy., Rte. 2, SP 83-01-05 and 83-02-03, Caddo Parish, CD 11/6; LB **$322,914**, (2 bidders), aggreg. type or soil cement base course 7.561 mi. Ville Platte Whiteville Hy., Rtes. 363, 1170, 29, SP 203-03-06 FASP S-50(2), Evangeline Parish, CD 11/11; LB **$639,047**, (2 bidders), wid'n. existing concrete pavt. 11.435 mi. Plain Dealing-Arkansas State Line Hy., Rte. 3, SP 44-02-08 and 44-03-04 FASP S-557(2), Bossier Parish, CD 10/28.

▲ **LOUISIANA**—State Dpt. Hys., Rm. 426, Headquarters Admin. Bldg., Baton Rouge,

Philip Farnsworth & Co., Box 752, New Orleans, La., CA **$3,221,174**, grading, drainage structures, railroad overpass and interchange structures 1.44 mi. Pontchartrain Blvd., Interchange-Airline Hy., Rte. I-10, SP No. 740-00-38. FAP No. I-10-5(15)234, Orleans Parish. Bids Oct. 21, awarded Nov. 3. CD 10/28, under LB.

J. B. Talley & Co., Box 26, St. Martinville, La., CA **$621,000**, 8 mi. street paving imprvs. within corporate limits, ST. MARTINVILLE, LA. Mayor & Town, St. Martinville, La. Bids Oct. 13. CD 10/21, under LB.

BUILDINGS—LB & CA

E. N. Hooper, 4620 Lee Hy., Arlington, Va., LB **$925,280**, (11 bidders) H. W. Longfellow INTERMEDIATE SCHOOL No. 1, near Kirby's Corner, FAIRFAX, VA. Fairfax Co. Bd. Educ., Fairfax, Va. Bids Nov. 19. CD 11/12.

Grigg & Kornblau, 710 W. Cary St., Richmond, Va., CA **$500,000**, Westbriar APARTMENTS, Grove Ave., RICHMOND, VA. Davis Distributing Corp., 710 W. Cary St., Richmond, Va. CD 11/18.

Kayhoe Constr. Co., 3510 Rosedale Ave., Richmond, Va., CA **$500,000**, River Road SHOPPING CENTER, RICHMOND, VA. J. D. Carneal & Sons, Inc., 3426 W. Cary St., Richmond, Va.

▲ **J. H. Frain & Son**, 2518 Williamston Rd., Roanoke, Va., CA **$1,064,875**, Northside HIGH SCHOOL, ROANOKE, VA. Roanoke County School Bd., Roanoke, Va. CD 11/6, under LB.

Rea Constr. Co., P. O. Box 1092, Charlotte, N. C., CA **$617,600** SCHOOL, CHARLOTTE, N. C., Charlotte Country Day School Sardis Rd. Charlotte, N. C. Bids Nov. 11, CD 11/18, under LB.

▲ **T. A. Loving & Co.**, Wachovia Bank Bldg., Goldsboro, N. C., CA **$1,036,850**, CLASSROOM, RALEIGH, N. C. North Carolina State College, Hillsboro St., Raleigh, N. C. Bids Aug. 19, awarded Nov. 18. CD 8/28, under LB.

▲ **Clair Mel-Builders, Inc.**, 5224 S. Dale Marby, Tampa, Fla., CA Est. **$1,624,000**, 137 DWELLINGS, area of Julian Lane Dr. and Dellwood Dr. at Clair-Mell City, approx. 10 mi. east of TAMPA, FLA. Mel Larson Development Co., 5224 S. Dale Marby, Tampa, Fla.

Tognoli-Perera, Inc., 2013 Harding St., Hollywood, Fla., LB **$644,950**, (10 bidders), Henry Perry JUNIOR HIGH SCHOOL, 7737 W. LaSalle Blvd., WEST HOLLYWOOD, FLA. Broward Co. Bd. P. Instruction Admin. Bldg., 1320 SW 4 St., Fort Lauderdale, Fla. Bids Nov. 18. CD 11/5.

Gervais Favrot Co., 330 Baltzer Bldg., New Orleans, La., CA **$888,808**, 10 story, rein.-con. frame, brick, tile and concrete block Y.M.C.A. and alterations to existing BLDG., NEW ORLEANS, LA. Bd. of Y.M.C.A., 936 St. Charles St., New Orleans, La. Bids Sept. 29. CD 10/6, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Wis., Milwaukee**—BA 12/7—Metropolitan Sewerage Comn. of the Co. of Milwaukee, P.O. Box 2079, Milwaukee, Zone 1, 4,735 ft., 150 in. diam. mono. concrete sewer in Puetz Rd., Lake Michigan, to 569 ft. W. of S. Chicago Rd., Oak Creek. Over $1,000,000. Plans deposit $10. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago 6, Ill., engrs. Raymond D. Leary, c/o owner, ch. engr. CD 1/6/58.

▲ **Wis., Milwaukee**—BA 12/14—Metropolitan Sewerage Comn. of the Co. of Milwaukee, P.O. Box 2079, Milwaukee, Zone 1, 4,684 ft., 150 in. diam. mono. concrete sewer in Puetz Rd. from 569 ft. W. of S. Chicago Rd. to S. Pennsylvania Ave., Oak Creek. Over $1,000,000. Plans deposit $10. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago 6, Ill., engrs. Raymond D. Leary, c/o owner, ch. engr. CD 1/6/58.

▲ **Wis., Milwaukee**—BA 12/21—Metropolitan Sewerage Comn. of the Co. of Milwaukee, P.O. Box 2079, Milwaukee, Zone 1, 5,331 ft., 144 in. diam. mono. concrete sewer in S. Pennsylvania Ave. from Puetz Rd. to Drexel Ave., Oak Creek. Over $1,000,000. Plans deposit $10. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago 6, Ill., engrs. Raymond D. Leary, c/o owner, ch. engr. CD 1/6/58.

BUILDINGS—BA

Wis., Waupaca—HOME FOR AGED—BA 12/11—Bethany Lutheran Home for Aged, home for aged. $700,000. Extended date. A. H. Siewert, 2716 W. North Ave., Milwaukee, archt. CD 11/4.

▲ **Ill., East St. Louis**—BA 1/5—East St. Louis Housing Authority, 810 Spivey Bldg., one 11 story, three 8 story and thirty-nine 2 story, 4 family, 600 unit housing Project, Missouri Ave., 13th and 18th Sts. and Broadway. $8,000,000. Extended date. Joseph D. Standish, 710 Spivey Bldg., East St. Louis, Ill., and 1021 Big Bend Blvd., St. Louis 17, Mo., archt. Joseph Goldenberg, 624A Missouri Ave., engr. CD 7/9.

HEAVY CONSTRUCTION—LB & CA

▲ **Dravo Corp.**, Neville Island, Pittsburgh, Pa., LB **$22,868,706**, locks, Pike Island Locks and Dam, Ohio River, CIVENG-36-058-60-11, OHIO AND WEST VIRGINIA. U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa. Bids Nov. 19. CD 10/16.

The Kassouf Co., 9715 Clinton Rd., Cleveland 2, O., CA **$710,045**, South Taylor Rd., Storm Relief Sewer, CLEVELAND HEIGHTS, O. City, 2953 Mayfield Rd., Cleveland 18, O. Bids Sept. 28. CD 10/8, under LB.

▲ **MICHIGAN**—State Hy. Dpt., Mason Bldg., Lansing, Mich.—**Holloway Constr. Co.**, 29350 Joy Rd., Livonia, Mich., CA **$2,115,714**, 5.7 mi. expressway and interchange at Polk Rd. on section from existing US 27 (Washington Rd.) northerly to south of Lincoln Rd., Gratiot Co.,

Mich.—**L. W. Edison Co.**, 3134 Midland Dr. S.E., Grand Rapids, Mich., CA **$1,345,962**, 5 mi. US 23 from north of South Livingston County Line north to the C. & O. R.R., Livingston Co. Bids Nov. 4, awarded Nov. 17. CD 11/9, under LB.

▲ **Michigan Sewer Constr. Co.**, 21720 West 8 Mile, Detroit, Mich., LB **$3,546,000**, est. $4,357,000, (4 bidders), 3 mi. sewer along East Seven Mile from Conant to Conner, DETROIT, MICH. City, 528 City-County Bldg., Detroit 26, Mich. Bids Nov. 10. CD 10/6.

BUILDINGS—LB & CA

Oberer Constr. Co., 4324 Webster, Dayton, O., Owner Builds, **$500,000**, 50 HOMES between Rahn Rd. and Mad River Rd., CENTERVILLE, O.

▲ **Conformal Homes, Inc.**, 5857 Far Hills Ave., Dayton, O., Owner Builds, **$1,000,000**, 24 HOMES, Durban Rd. area of Washington Twp. ¼ mi. south of Whipp Rd., DAYTON, O.

▲ **Macedonia Estates, Inc.**, 3716 W. 143 St., Cleveland, O., Owner Builds, **$1,350,000**, 75 HOMES, intersection of Valleyview Rd. and Twinsburg Rd., MACEDONIA, O.

Medina Corp., c/o Adolph Mears, 426 E. Liberty St., Medina, O., CA Est. **$500,000**, 40,000 sq. ft. manufacture of home disposal units PLANT, MEDINA, O. National Rubber Machine Co., 384 Getty Ave., Clifton, N. J.

Marion Contg. Co., S. Main St., Dayton, O., CA **$716,300**, JUNIOR HIGH SCHOOL, MIDDLETOWN, O. Middletown Bd. Educ., Manchester Rd., Middletown, O. Bids Oct. 27, awarded Nov. 16. CD 11/9, under LB.

Earle Lefton, 2537 Edgewood, Cleveland, O., Owner Builds, **$450,000**, 18 HOMES on Royal Ridge Dr. south of intersection Ridge Rd. and Ridgewood Dr., PARMA, O.

▲ **Knowlton Constr. Co.**, 1133 W. Columbus St., Bellefontaine, O., Owner Builds, **$2,000,000**, SHOPPING CENTER, 15 acre tract, PARMA HEIGHTS, O. Davis, Brody & Wisniewski, 220 E. 23rd St., New York 10, N. Y., archts.

▲ **Practical Builders, Inc.**, 613 E. Market St., Sandusky, O., Owner Builds, **$3,000,000**, 350 HOMES on 84 acre site, Remington Ave. area, SANDUSKY, O.

William A. Fleming, 336 Zeller, Akron, O., Owner Builds, **$800,000**, 52 HOMES, Beechview Estates, 1 mi. east of Tallmadge Circle, TALLMADGE, O.

Corey Bros., Builders, 2440 Valleybrook Dr., Toledo, O., Owner Builds, **$750,000**, 20 HOMES, Valleybrook Estates area, Valleybrook Dr., TOLEDO, O.

▲ **Fuller Realty Co.**, 3130 Upton Ave., Toledo, O., Owner Builds, **$1,000,000**, 78 frame, brick, HOMES, Fuller's Mt. Vernon Addn., Adams Twp. off Hill Ave. east of Richards Rd., TOLEDO, O.

Reynolds Constr. Co., 3040 Bellevue Rd., Toledo, O., CA Est. **$800,000**, 40 HOMES, Heatherlawn Heights area, tract southwest of corner Byrne Rd. and Heatherdown Rd., TOLEDO, O. Stanley Levison, 4334 W. Central Ave., Toledo, O.

Paugh & Brown, 6007 Euclid Ave., Cleveland 3, O., LB **$809,000**, (11 bidders), general contract, SCHOOL, WESTLAKE, O. Bd. Educ. Dover Center Rd., Westlake, O. Bids Nov. 17. CD 11/4.

John Wile Constr. Co., 826 Humler, Louisville, Ky., LB **$787,000**, (9 bidders), general contract 1 and 2 story, 150,000 sq. ft., brick, concrete block, rein.-con. Jeffersonville JUNIOR HIGH SCHOOL, JEFFERSONVILLE, IND. Jeffersonville-Clark Co. School Bldg. Corp., Jeffersonville, Ind. Bids Nov. 19. CD 10/21.

▲ **William D. Rommel Co.**, 1449 Hugh Ave., Louisville 13, Ky., CA POLYCARBONATE PLANT, MOUNT VERNON, IND. General Electric Co., 1 River Rd., Schenectady, N. Y. Bids Oct. 12, awarded Nov. 6. CD 9/28.

Bauer Constr. Co., 3411 W. Hopkins St., Milwaukee, Wis., LB **$828,880**, (12 bidders), general contract ADMINISTRATION, MILWAUKEE, WIS. Bd. School Directors, 1111 N. 10 St., Milwaukee, Wis. Bids Nov. 19. CD 10/12.

▲ **Banas-Wrobel**, Maybee, Mich., Owner Builds, Over **$3,000,000**, 300 HOMES, incl. swimming pool, Sherwood Park Subdivision, Bedford Twp., TEMPERANCE, MICH.

▲ **Jesse LaVoy**, Crabb Rd., Temperance, Mich., CA Est. **$1,250,000**, 76 HOMES, Mohawk Trails Subdivision, off Dean Rd., Lewis Ave., Bedford Twp., TEMPERANCE, MICH. Edw. J. McLaughlin, 7979 Mohawk Trail, Temperance, Mich.

▲ **Madras Bros.**, 3315 Scarborough Rd., Toledo, O., Owner Builds, **$1,000,000**, 42 HOMES, Brookwood Forest, off Dean Rd. between Jackman and Douglas Rd., Bedford Twp., TEMPERANCE, MICH.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲ **Mo., St. Louis**—BA 12/22—City, Bd. P. Service, 304 City Hall, Zone 3, Grand Blvd. viaduct across Mill Creek Valley railroad tracks between Market and Papin Sts. $1,900,000. Sverdrup & Parcel, Inc., 917 Olive St., Zone 1, engr. CD 8/14/58.

BUILDINGS—BA

Okla., Oklahoma City—SCHOOL—BA 12/17—Bd. Educ., 900 N. Klein St., Northeast High School addn., 3100 N. Kelley. $450,000. Plans deposit $50. Sorey, Hill & Sorey, 809 N.W. 36th St., archts. CD 11/20/58.

HEAVY CONSTRUCTION—LB & CA

Wilson & Tavrides, Inc., Brookfield, Ill., CA **$965,347**, sewage treatment plant imprvs., AUSTIN, MINN. City, City Hall, Austin, Minn. Bids Oct. 14. CD 10/28, under LB.

▲ **Barbarossa & Sons, Inc.**, 402 33rd Ave. North, St. Cloud, Minn., CA **$1,140,014** sewer trunks, 22,000 lin. ft. sanitary sewers, etc. BLOOMINGTON (P. O. MINNEAPOLIS) MINN. Village, Village Hall, Bloomington, Minn. Bids Nov. 13. CD 11/17, under LB.

▲† **General Electric Co.**, 610 Electric Bldg., Omaha, Neb., LB **$925,876**, Sched. C, LB **$779,051** Sched. B, LB **$146,826** Sched. A (5 bidders), furnishing oil circuit breakers near Pierre, Oahe Reservoir Proj., ENG 25-066-60-27 SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Nov. 17. CD 10/14.

KANSAS—State Hy. Comn., Dodge City,

Broce Constr. Co., Inc., 110 Cherry St., Dodge City, Kan., CA **$571,607**, grading, dense graded surf. 13.125 mi. SP 283-29 F 021-1 (3) Ford Co. Bids Nov. 10. CD 11/17, under LB.

▲† **Hyde Constr. Co.**, 1804 N. Mill St., Jackson, Miss., CA **$16,173,877**, spillway and related work Keystone Dam, Arkansas River, near San Springs, ENG 34-066-60-22, OKLAHOMA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Nov. 10. CD 11/13, under LB.

MONTANA—State Hy. Comn., Helena, Bids opened 11/18,

W. R. Cahoon Constr. Co., Pocatello, Idaho, LB **$657,143**, 730.42 ft., steel, concrete bridge over Yellowstone River, Livingston East and West Rd., FAI Proj., Park Co. CD 11/10.

▲ **NEW MEXICO**—State Hy. Comm., State Hy. Bldg., Cerrillos Rd., Santa Fe,

N. M.—**Brown Constr. Co.**, 3525 4 St. N. W., Albuquerque, N. M., CA **$205,951**, est. $311,471, Lemitar-Polvadera, frontage roads, Proj. No. I-025-3 (12) 152, Socorro Co.; CA **$848,509**, est. $1,278,407, Tesuque-Pojoaque, Proj. No. F-051-1 (8) US 64, 84, 285, Santa Fe Co. Bids Nov. 20, awarded Nov. 20;

N. M.—**O. D. Cowart**, 523 Amherst Dr. S. E., Albuquerque, N. M., CA **$442,451**, est. $570,705, Tatum Urban, Proj. No. F-021-3 (1), F-026-1 (4), F-026-2 (1), U. S. 380, N. M. 18, Lea Co.; CA **$131,298**, est. $139,545, Vallecitos-North, N. M. 290, Proj. No. S-1321 (2), Sandoval Co. CD 11/1.

BUILDINGS—LB & CA

Frank Quinlan Constr. Co., 3917 Washington Ave., St. Louis 8, Mo., CA **$815,000** combination general, mechanicals, electric, etc. 5 story, 48x116 ft. HOSPITAL addn., remodeling, HANNIBAL, MO. Levering Hospital, Hannibal, Mo. Bids Sept. 24. CD 10/16, under LB.

▲ **Revco Constr. Co.**, 214 N. Broadway, Shawnee, Okla., CA **$1,168,300**, Nimitz JUNIOR HIGH SCHOOL,

TULSA, OKLA. Bd. Educ., 410 E. Cincinnati, Tulsa, Okla. Bids Oct. 7. CD 10/13, under LB.

Braselton Constr. Co., Box 4027, Corpus Christi, Tex. CA **$838,900**, HIGH SCHOOL, ROBSTOWN, TEX. Robstown Ind. School Dist., Robstown, Tex. CD 10/20, under LB.

▲ **N. G. Petry**, 1114 West 7 Ave., Denver, Colo., CA Approx. **$800,000**, 50,000 sq. ft. CLUBHOUSE, tennis courts, stables and riding paths, etc., DENVER, COLO. Pinehurst Country Club, 1845 Sherman, Denver, Colo. CD 11/18/58;
Press Maxwell, 3855 Walnut Hill Lane, Dallas, Tex., CA **$300,000**, golf course (Denver, Colo.).

▲ **Martin & Kirchhof Constr. Co.**, 700 Lawrence, Denver, Colo., CA Approx. **$1,000,000**, 12 story First National BANK remodeling, DENVER, COLO. Boettcher Foundation; 828 17 St., Denver, Colo. American National Bank, lessee. CD 10/20.

▲ **Geo. A. Fuller & Co.**, Gibraltar Life Bldg., Dallas, Tex., CA **$8,110,000**, structural steel frame MFG. PLANT, earth site work, repair shop, brick veneer laboratory-office, ALBUQUERQUE, N. M. American Gypsum Co., c/o F. M. Standley Sinns Bldg., Albuquerque, N. M. W. C. Kruger & Assocs., P. O. Box 308, Santa Fe, N. M., archts. CD 7/10.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Calif., Lemoore**—AIRCRAFT FUEL STORAGE FACILITIES—BA 12/16—Dist. P. Wks. Office, 12th Naval Dist., Room C112, San Bruno, aircraft fuel storage facilities (3rd increment) Naval Air Station, (Part T) NBy 25185, Spec. 25185/59. $250,000-$500,000. CD 8/19.

HEAVY CONSTRUCTION—LB & CA

UTAH—State Rd. Comn., State Capitol, Salt Lake City,
Fife Constr. Co., Box 563, Brigham City, Utah, CA **$968,507**, grade, drain 7.495 mi. Proj. I-15-8 (3) Box Elder Co. Bids Oct. 27. CD 11/2, under LB.

▲† **R. A. Heintz**, 211 North East Columbia Blvd., Portland, Ore., and **Rogers Constr. Co.**, 11760 Northeast Gilson St., Portland, Ore., CA **$3,132,802**, est. $3,-731,135, Section II, Union Pacific rail relocation at Ice Harbor Dam, Pasco, Inv. 60-5, WASHINGTON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Nov. 10. CD 11/12, under LB.

† **CALIFORNIA**—Bureau P. Rds., 133 Hermann St., San Francisco,
J. W. Briggs Co., P.O. Box 348, Redding, Calif., CA **$726,016**, base course, bit. surf. Tioga Rd., Proj. 4-B6, C4, Yosemite National Park, Tuolumne and Mariposa Counties. Bids Oct. 6. CD 10/14, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St. Sacramento,
Calif.—**Fredrickson & Watson Constr. Co.**, 873 81 Ave., Oakland, Calif., CA **$673,540**, grading, surf., realign 2.8 mi. FAS County Rd., 786 (Trenton Rd.) between Wohler Rd. and 1.2 mi. west of Olivert Rd. about 7 mi. northwest of Santa Rosa and bridge over Mark West Creek, IV Son-786, Sonoma Co.;
Calif.—**I. L. Croft & Son, Inc.**, P. O. Box 428, Saugus, Calif. CA **$656,768**, grading surf. to realign 4.1 mi. State Sign Rte. 89 (Luther Pass Highway) between Picketts in Alpine Co. and west of Grass Lake in El Dorado Co.; X-AL-E, D.-23, F, A Alpine and El Dorado Counties, Bids Nov. 4, awarded Nov. 17. CD 11/11, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento, Bids opened 11/18.
Gibbons & Reed Co., 825 W. 9th North St., Salt Lake City, Utah, LB **$1,332,900**, (16 bidders), 2.5 mi. 4 lane freeway and 0.7 mi. 2 and 4 lane hy. generally parallel to and south of exit U. S. Hy. 99 N. W. of Weed, incl. 4 lane 184 ft. bridge over Shasta River. 11-Sis-3-A. B., Siskiyou Co. CD 10/21.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,
Griffith Co., 1060 S. Broadway, Los Angeles 15, Calif., CA **$2,744,478**, grade, pave to constr. 2.7 mi. 6 lane freeway U.S. Hy. 80 between 0.4 mi. west of Chase Ave. and Ballantyne Lane in El Cajon, XI-S.D.-12, EC;, San Diego Co. Bids Nov. 5, awarded Nov. 18. CD 11/11, under LB.

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento,
Lord Bishop, Inc., P. O. Box 812, Sacramento, Calif., CA **$577,107**, 4-lane bridge over American River, FAS Co. Rd. 933 (Watt Ave. extension) about 2 mi. east of Sacramento, III-SAC-933, Sacramento Co. Bids Nov. 4, awarded Nov. 17. CD 11/11, under LB.

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento,
Parish Bros., Inc., P.O. Box 6, Benicia, Calif., CA **$648,183**, grade, surf. 1.5 mi. initial 2 lanes future 4-lane divided hy. FAS Co. Rd. 1256 (Cummings Skyway) between U.S. Hy. 40 near Crockett and Crockett Blvd., IV-CC.-1256, Contra Costa Co. Bids Nov. 4, awarded Nov. 18. CD 11/11, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 11/19.
E. L. Yeager Co., E. L. Yeager Constr. Co. & Lowe & Watson, P.O. Box 87, Riverside, Calif., LB **$5,158,-085**, (13 bidders), grade, surf. 9.7 mi. 4-lane freeway to provide bypass of Barstow for Traffic U.S. Hys. 66, 91-66 and 91466, 14 structures, VIII-SBd-31, 58-F Bsw, G,D,E, Dan Bernardino Co. CD 10/8.

O. K. Mittry & Son, 15095 S. Broadway, Gardena, Calif., CA **$877,870**, Bethany Forebay Dam and 2 mi. Canal Section, 1st unit South Bay Aqueduct Proj. under Calif. Water Plan, Feather River Proj., Fremont area, Alameda Co., CALIFORNIA. State Dpt. Water Resources, 1120 N. St., Sacramento, Calif. Awarded Nov. 19. CD 11/12, under LB.

▲ **Robert E. McKee, General Contractors, Inc.**, 4701 San Fernando Rd. West, Los Angeles 39, Calif., CA **$24,090,383**, Complex 3 and theme structure Complex 4, Phase 1 for satellites, ticketing bldgs., channel interiors, Los Angeles International Airport, LOS ANGELES, CALIF. Dpt. Airports, City Hall, Los Angeles, Calif. Bids Oct. 20. CD 10/23, under LB.

▲ **Gibbons & Reed**, 1450 Chapin St., Burlingame, Calif., and **J. A. Jones Constr. Co.**, 1117-2d Ave. Bldg., Seattle, Wash., LB **$1,810,987**, (5 bidders), Camino Dam, Tunnell Intake and appurtenances, Upper American River Proj., El Dorado Co., Spec. 2213, SACRAMENTO, CALIF. Sacramento Municipal Utility Dist., 1708-59th St., Sacramento, Calif. Bechtel Corp., 220 Bush St., San Francisco, Calif. engr. CD 1/8/58.

BUILDINGS—LB & CA

Vik Constr. Co., 160 Madison St., Eugene, Ore., LB **$829,359**, (6 bidders), Spencer Butte JUNIOR HIGH SCHOOL, EUGENE, ORE. Eugene School Dist., Lane County Dist. No. 4, Eugene, Ore. Bids Nov. 17. CD 10/7.

▲ **Dinwiddie Constr. Co.**, Crocker Bldg., San Francisco, Calif., CA Est. **$6,500,000-$7,000,000**, 16 story, steel frame, concrete OFFICE AND PARKING BLDG., Wilshire Blvd. and Vermont Ave., LOS ANGELES, CALIF. Pacific Indemnity Co., 3450 Wilshire Blvd., Los Angeles, Calif. Bids Oct. 15. CD 10/5.
James E. Roberts Co., 980-41st St., Oakland 8, Calif., CA **$769,500**, ninety 1 story, wood frame, stucco dwelling units, low rent HOUSING, North Richmond, MARTINEZ, CALIF. Contra Costa Co. Housing Auth., 700 D St., Martinez, Calif. CD 11/16, under LB.

▲ **Barrett Constr. Co.**, 1900 Evans Ave., San Francisco, Calif., CA **$2,274,000**, Phase II, major mechanical equipment facility, interior doors and frames, hardware exten. curtain walls, ceramic veneer, granite and terazzo work at HALL OF JUSTICE, OAKLAND, CALIF. City, City Hall, Oakland, Calif. Bids Oct. 29. CD 11/5, under LB.
Morris Daley Constr. Co., 1145 California St., Burlingame, Calif., CA **$753,775**, GYM and LOCKER ROOMS, Burlingame High School, SAN MATEO, CALIF. San Mateo Union High School Dist., 650 N. Delaware St., San Mateo, Calif. Bids Oct. 29. CD 11/6, under LB.

† **Noxon Constr. Co.**, 1513 W. Temple St., Los Angeles, Calif., LB **$749,875**, (9 bidders), 45,500 sq. ft. DEVELOPMENT CONTROL CENTER, Increment No. 2, utilities, site work, ENG-60-9, SUNNYVALE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. CD 10/16, under LB.

CANADA

BUILDINGS—BA

▲ **N. S., Halifax**—HOSPITAL WING, etc.—BA 12/10—Sisters of Charity, Mount St. Stephen, 3 story hospital wing, 5 story outpatient dept., Halifax infirmary. $5,000,000. Extended date. Franco Consigio, 1201 Guy St., Montreal, Que., archt. Brouillet & Carmel, 3600 Barclay Ave., Montreal, Que., engrs. CD 11/19.

HEAVY CONSTRUCTION—LB & CA

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, Bids 11/18.
O & H Constr. Ltd. and O Mechinsky Ltd., 7-8 Lowery Bldg., Port Arthur, Ont., LB **$585,037** (9 bidders), grading, culverts, granular base 8.32 mi. Hy. 11 from Hearst easterly (Contract 59-303), Hearst. CD 11/5.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto.
Runnymede Steel Constr. Ltd., 3370 Dundas St. W., Toronto, Ont., CA **$617,160**, 2,248 tons structural steel, Bridge No. 12, Hy. 401, (59-103) Preston. Bids Nov. 18. CD 11/11.

▲ **McNamara Marine Ltd.**, 57 Industrial St., Leaside, Ont., CA **$547,823**, Welland Ship Canal Western Dist., entrance wall extension, guard gate; CA **$543,180**, Welland Ship Canal, Western Dist., entrance wall extensions, Lock 2, Welland, ONTARIO. The St. Lawrence Seaway Authority, Rm. 1225, No. 2 Temporary Bldg., Wellington St., Ottawa, Ont., Awarded Nov. 16, Grand total $1,828,469. CD 11/17;
C. A. Pitts General Contractor Ltd., 30 Commercial Rd., Leaside, Ont., CA **$737,466** Welland Ship Canal, Western Dist., entrance wall extensions Lock 3 (Ontario).
Canada Constr. Co. Ltd., Taber Rd., Rexdale, Ont., CA **$635,000**, erection and completion fdns. for Aeroquay No. 1, Air Terminal Bldg., Malton Airport, TORONTO, ONT. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Oct. 22, awarded Nov. 18. CD 10/28 under LB.

▲ **Robert McAlpine Ltd.**, Box 249, Weston, Ont., CA **$1,279,561**, 4-lane extension to Lawrence Ave. E across Don Valley, incl. 4 bridges and wid'n. Lawrence Ave. to four lanes, TORONTO, ONT. Metropolitan Toronto Roads Dpt., 75 Eglinton Ave. E., Toronto, Ont. Awarded Nov. 18. CD 11/16, under LB.

BUILDINGS—LB & CA

▲ **Commonwealth Constr. Co. Ltd.**, 700 Taylor St., Vancouver, B. C., CA **$1,283,049**, rein.-con. INDIAN RESIDENTIAL SCHOOL, MISSION CITY, B. C. Dpt. P. Wks., 406 Hunter Bldg., Ottawa, Ont. CD 9/14, under LB.
Redfern Constr. Co. Ltd., 8 King St. E., Toronto, Ont., LB **$897,000**, two BATTALION COLUMN ARMOURY, North York, TORONTO, ONT. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Page & Steele, 72 St. Claire Ave. W., Toronto, Ont., archts. C. D. Carruthers & Wallace, Consultants Ltd., 92 Yorkville Ave., Toronto, Ont., engrs.

▲ **W. C. Wells Constr. Co. Ltd.**, 140 Ave. F, North Saskatoon, Sask., CA **$1,245,000**, steel frame, native limestone facing Theological COLLEGE WING, SASKATOON, SASK. United Church of Canada, c/o St. Andrew's College, Saskatoon, Sask. Bids Oct. 29, awarded Nov. 10. CD 10/22.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **Collins Constr. Co.**, Port Lavaca, Tex., U.S.A., and **Constructora Inde SA de CV**, Mexico City, Mexico, CA Est. **$1,200,000**, 12 and 24 in. gas lines for 8 river crossings, MEXICO. Petroleos Mexicanos (PEMEX) c/o Admin. Bldg. P. Wks., Mexico City, Mexico.

BUILDINGS—LB & CA

▲ **Aluminum Co. of America**, 1200 Alco Bldg., Pittsburgh, Pa., U.S.A., and **Mexican Interests**, Owner Builds, **$20,000,000**, ALUMINUM PLANT, Vera Cruz, MEXICO.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **PAKISTAN**—Govt. Pakistan, Karachi,
Dorman Long (Bridge & Engineering) Ltd., Zetland Rd., Middlesborough, Yorkshire, England, and **Gammon Pakistan, Ltd.**, Karachi, Pakistan, CA Est. **$3,200,000**, 807 ft. concrete bridge over Indus River, near Sukkur. David B. Steinman, 117 Liberty St., New York 6, N. Y., U.S.A., engr. CD 8/31.

PROPOSED PROJECTS

WATER SUPPLY

Ala., Jasper—City, City Hall, enlarge Cordova filter plant, parallel 12 in. main from Cordova to 1 m. g. storage tank near city, mains in city and another storage tank. **$700,000**. Polglaze & Basenberg, 812 S. 28 St., Birmingham, consult. engrs. CD 6/17.

N. C., Jacksonville—City, City Hall, water treatment plant addn., 2 wells, raw water lines, **$875,000**. William F. Freeman, Inc., 116 Commerce St., High Point, consult. engrs.

▲ **S. C., Chesnee**—Chesnee Water Dist., Town Hall, water distr. lines, etc. **$1,000,000**. Lockwood Greene Engineers, Inc., 1020 Montgomery Bldg., Spartanburg, consult. engr. CD 8/10/53.

B. C., Kamloops—Corp. of Kamloops, City Hall, sewerage installations. **$720,000**. M. L. Wade, Kamloops, consult. engr. Constr. in 1960.

SEWERS, WASTE DISPOSAL

▲ **Fla., Miami**—Bd. Comrs. Dade Co., 10 Floor, Courthouse, sewage treatment plant, interceptors, lateral sewers, etc. Intercoastal Waterway, to Ocean and from Bakers Haulover to Broward Co. Line, Miami Beach Section. **$6,000,000**. A. B. Kononoff, 620 NW 32 St., consult. engr. CD 6/23.

Ill., Homewood—Village, Village Hall, defeated bonds Oct. 24, storm sewers, **$756,000**. CD 1/2/59.

N. J., Totowa—Borough, Borough Hall, sewerage sys. imprvs., incl. Riverview treatment plant reconstr. **$775,000**. Fred Gardner & Asso., 1455 Main Ave., Clifton, consult. engrs. CD 11/18.

N. C., Lincolnton—City, City Hall, sewerage, sanitary sewers, **$960,000**.

▲ **O., North Olmsted**—City, 25128 Lorain Rd., North Olmsted, voted bonds Nov. 3, sewage disposal plant and sanitary sewers in east end of city. **$1,700,000**. (Correction—status). CD 11/11.

O., Toledo—Bd. Comrs. Lucas Co., Courthouse, sanitary sewers, sanitary sewer No. 49, Section H locals, southeast corner Road area, **$950,000**. Raymond E. Hall, Jackman Rd., co. engr. Bids early 1960.

▲ **Okla., Oklahoma City**—City, City Hall, municipal garbage disposal plant. **$6,000,000**. W. W. Baker, City Hall, staff engr.

▲ **Pa., Athens**—Athens-Sayre Joint Auth., c/o S. A. Jimerson, 743 S. Main St., Athens, sewage treatment plant, pumping stations, interceptors and sewer lines. **$3,000,000**. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. 2nd St., Harrisburg, consult. engr. CD 4/18/46 and 1/23/46.

▲ **Pa., Bristol**—Bristol Twp., L. B. Sokolove, chn. Sewer Com., 238 Mill St., sewage collection and treatment sys., Bristol Twp. **$2,500,000**. Gannett, Fleming & Corddry & Carpenter, Inc., 600 N. 2nd St., Harrisburg, consult. engr.

▲ **Pa., Yardley**—Lower Makefield Twp., Yardley, sewage collection and treatment sys., Lower Makefield Twp. **$1,500,000**. Gannett, Fleming, Corddry & Carpenter Inc., 600 N. 2nd St., Harrisburg, Pa., engr.

Tex., Balch Springs—Dallas County Water Dist. No. 6, Balch Springs, voted bonds Nov. 7, sewerage sys. installation. **$870,000**. CD 10/22.

Va., Arlington—City, City Hall, Potomac Relief sewerage sys. **$860,000**.

▲ **Va., Hopewell**—City, City Hall, sewage disposal sys. **$1,100,000**. CD 11/9/56.

▲ **Va., Martinsville**—City, City Hall, sewer imprv. program. **$3,500,000**.

BRIDGES

N. J., Somerville—Bd. Freeholders Somerset Co., Court House, rebuilding Reading Railroad underpass, Main

St., Manville, **$770,000.** Donald H. Stires, Court House, engr.

▲ **O., Jefferson**—Comrs. Ashtabula Co., Court House, defeated 2-mill bridge levy Nov. 3. **$1,500,000.** CD 8/11.

▲ **VIRGINIA**—Dpt. Hys., 1221 E. Broad St., Richmond, **Essex and Richmond Counties**—bridge to replace present Downing Structure over Rappahannock River. **$3,500,000.**

▲ **Va., Richmond**—City, Dpt. P. Wks., The Mosque, bridge connecting West End and Southside over James River. **$3,000,000.**

Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, W. Garfield St. bridge repairs, **$750,000.** C. C. Arnold, Arctic Bldg., Seattle, Zone 4, consult. engr. CD 7/8.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, bond election Mar. 8, bridge or underwater crossing of Lake Washington ship canal at extension of Empire expressway, **$6,982,000.** R. W. Morse, c/o owner, city engr. CD 11/15/57, under Washington, State Toll Bridge Auth. as owner.

▲ **Wash., Seattle**—City, County-City Bldg., Zone 4, bond election Mar. 8, "off" ramp from Alaskan Way viaduct, **$200,000,** underpass at Shilshole Ave. and W. 65 St., **$167,000,** CD 6/5; extension and imprv. W. Spokane St. viaduct, incl. interchanges, **$4,835,000,** viaduct connection between new freeway and Alaskan Way at Connecticut St., **$2,863,000.** R. W. Morse, c/o owner, city engr. CD 6/16.

STREETS AND ROADS

Fla., Sarasota—Florida Builders, Inc., 700 43rd St. S., St. Petersburg, clearing, grading, underground utilities, streets for 700 unit housing development, Southridge. **$700,000.**

▲ **Va., Newport News**—City, City Hall, road to West Gate, NASA, **$500,000;** access roads to Tide Mill Gate, **$1,000,000.** CD 2/8/45.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, bond election Mar. 8, constr. Empire expressway from E. Union St. to Bothell Way, **$7,120,000;** connection between new freeway and Aurora Ave. at N. 85 St., **$175,000;** street connection between Montlake dist. and new freeway at Roanoke St., **$2,357,000;** connection between new freeway and Aurora Ave. at Mercer St., **$1,925,000.** R. W. Morse, c/o owner, city engr. CD 6/16.

BRITISH COLUMBIA—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.,
Revelstoke—300 ft. Snowshed, Rogers' Pass Section Mile 11, Trans Canada Hy. **$850,000.** Choukalos, Woodburn, Hooley & McKenzie, 159 W. Broadway, Vancouver, consult. engrs. J. P. Hague, Dpt. P. Wks., Div. Hys., Revelstoke, owners engr.

AIRPORTS

▲ **N. C., Raleigh**—RUNWAY, etc.—Raleigh-Durham Airport Auth., State Bldg., extend runway and taxiway, widen existing taxiway to 75 ft., extend lighting facilities, relocate road, enlarge terminal Raleigh-Durham Airport. **$1,000,000.**

▲ **Ont., Toronto (Malton)**—HANGAR—Filed Aviation Co. of Oshawa, Oshawa Airport, hangar, International Airport, **$1,000,000.**

LATIN AMERICA

▲ **El Salvador, San Salvador**—HOSPITAL—Salvadoran Institute of Social Security, San Salvador, plans by Prieto Perlo Ingenieros, El Salvador, and Isadore & Zachary Rosenfield, 45 W. 45 St., New York, N. Y. U. S. A., hospital. **$2,800,000.**

FOREIGN

▲ **Japan, Hirohata**—FURNACE—Fuji Iron & Steel Co. Ltd., 1,500 ton per day blast furnace. **$75,300,000.**

▲ **Japan, Kyushu**—Plant—Yawata Iron & Steel Co., Ltd., integrated steel plant, incl. two 1,500 ton per day blast furnaces, sintering plant, three oxygen 2 blowing converters, 48 in. slabbing mill for Tobata Works. **$117,600,000.**

AMERICANS ABROAD

▲† **Philippine Islands**—HOSPITAL—Bureau Yards & Docks, Subic Bay, Navy 3002, c/o Fleet Post Office, San Francisco, Calif. U. S. A., plans by Belt, Lemmon & Lo, Kenrock Bldg., Honolulu, Hawaii, 5 story hospital, Clark Air Force Base. **$4,000,000.** CD 12/11/58.

PUERTO RICO

▲ **Puerto Rico, Bayamon**—HOMES—Gonzalez & Gonzalez, Ponce de Leon 1500, San Juan, homes, Nueva Caparra. **$3,200,000.**

PUBLIC BUILDINGS

▲ **Calif., Stockton**—SCHOOL—Stockton City Unified School Dist., 701 N. Madison St., plans by Mayo & deWolf, Assoc., 307 Exchange Bldg., 142 N. California St., Junior High School. **$1,750,000.** CD 12/15/54.

▲ **Colo., Greeley**—HOSPITAL—Weld Co. General Hospital, 16 and 17 Aves., plans by Fisher & Davis, 826 Denver National Bank Bldg., Denver, 85 bed hospital addn. **$1,000,000.** CD 10/28/58.

▲ **Conn., Coventry**—SCHOOL—Town, Town Hall, plans by Russell, Gibson & Von Dohlen, 1009 Farmington Ave., West Hartford, Junior-Senior High School, **$1,375,000.** CD 3/9.

▲ **Conn., New Haven**—HOSPITAL—State P. Wks. Dpt., 165 Capitol Ave., Hartford, plans by Pedersen & Tilney, 175 Whitney Ave., mental hospital **$2,000,000.** CD 10/23/58.

▲ **Conn., Norwich**—SCHOOLS—Town, Bd. Educ., City Hall, $2,100,000 bond election Dec. 1, Occum Elementary School, Merchants Ave. **$450,000;** Junior High School, Ox Hill Rd. **$500,000.** CD 8/18.

▲† **D. C., Wash.**—OFFICE—General Services Admin., 18th and F Sts., Zone 25, plans by Chatelain, Gauger & Nolan, 1632 K, N.W., and Perkins & Will, 309 W. Jackson, Chicago, Ill. 289,000 sq. ft. office, Federal Deposit Insurance, 17 St. and New York Ave. and F St. N.W. **$11,500,000.** Bid November 1960.

▲ **Fla., Bradenton**—SCHOOLS—Manatee Co. voted bonds Nov. 3, schools. **$4,000,000.** CD 10/30.

▲ **Fla., Ocala**—COURT HOUSE, etc.—Marion County, County Bldg., voted **$2,350,000** bonds, Nov. 3, court house and jail, J. Vance Duncan, Ocala, archt. for courthouse, Berry Walker, Ocala, archt for jail. CD 9/21.

▲ **Ga., Canton**—HOSPITAL—Cherokee Co. Hospital Auth., Courthouse, plans by Stevens & Wilkinson, 157 Luckie St. N.W., Atlanta, hospital, **$1,290,000.**

▲ **Ill., Arlington Heights**—HIGH SCHOOL—Arlington Heights High School Dist. 214, 502 Euclid Ave., voted bonds Nov. 14, high school, **$3,900,000.** CD 10/14.

▲ **Ill., Decatur**—SCHOOLS—Decatur School Dist., Bd. Educ., defeated **$6,286,200** bonds Nov. 10, schools and imprv. existing buildings. CD 9/29.

▲ **Ill., Midlothian**—HIGH SCHOOL—School Dist., 228 Crawford Ave., plans by Nicol & Nicol, 23 E. Jackson Blvd., Chicago, Zone 4, high school, 175th and Highland Ave. **$1,700,000.**

Ky., Covington—VOCATIONAL SCHOOL—Commonwealth of Ky., Div. of Purchases, Frankfort, two 1 story, 100x275 ft. vocational school bldgs., off Dixie Hy. **$900,000.** Elliston Howard, L. Arch Hall—McAllister & Stockwell, 706 Walnut St., Cincinnati, O., consult. engrs.

▲† **Mass., Ayer**—HOUSING—U. S. Eng., 424 Trapelo Rd., Waltham, Zone 54, plans by Carl Koch & Assocs., 55 Brattle St., Cambridge, Mass., 1,200 unit Capehart Housing, Fort Devens. **$15,000,000.** Fred S. Dubin Assocs., 178 S. Whitney St., Hartford 5, Conn., engrs. CD 7/15.

▲ **Mass., Danvers**—SCHOOL—Town, Supt. Schools, Pickering St., plans by Rich & Tucker Assoc., 45 Newbury St., Boston, elementary school, adjacent to proposed high school. Approx. **$1,000,000.**

Mass., Wrentham—NURSERY—Commonwealth of Mass. Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, plans by Whitney Atwood & Norcross, 256 Boylston St., Boston, Proj. M-60-15, nursery, State St. Approx. **$792,000.**

▲ **Mich., Dearborn**—AUDITORIUM—City, City Hall, defeated bonds Nov. 3, city auditorium. **$3,750,000.** CD 8/27.

▲ **Minn., Duluth**—CLASSROOM, etc.—Regents of the University of Minnesota, 404 Administration Bldg., Minneapolis, Zone 14, plans by Melander, Fugelso & Assocs., 603 Alworth Bldg., classroom for teacher education program, Duluth Branch, **$765,000;** plans by Jyring & Whiteman, Hibbing, Minn., industrial education bldg., Duluth Branch, **$855,000.** CD 7/14.

▲ **Minn., Minneapolis**—BUSINESS ADMINISTRATION, etc.—Regents of the University of Minnesota, 404 Admin. Bldg., Zone 14, plans by Hammel & Green, Inc., 1932½ University Ave., St. Paul, school of business administration and general purpose classroom bldg., combined west bridgehead, **$1,911,600;** plans by Magney, Setter, Leach, Lindstrom & Erickson, 250 Fosnay Tower, Minneapolis, Minn., social sciences and general purpose classroom bldg. combined west bridgehead, **$2,000,709,** CD 7/14; plans by Toltz, King, Duvall, Anderson & Assocs., 1408 Pioneer Bldg., St. Paul, Minn., chemical storage bldg. addn., Minneapolis Campus, **$453,600.**

▲ **Minn., Virginia**—SCHOOLS—Bd. Educ., **$3,000,000** bond election Dec. 8, high school, Junior High School and Junior College remodeling. CD 1/12.

▲ **Minn., White Bear Lake**—SCHOOL—Bd. Educ., Independent School Dist. No. 624, **$1,200,000** bond election Dec. 8, elementary school. Haarstick-Lundgren & Assocs., N-212 First Natl. Bldg., St. Paul, archts. CD 4/5/57.

Miss., Jackson—SCHOOL—Bd. Trustees, Jackson P. Schools, 662 S. President St., plans by R. W. Naef, archt.-consult. engr., 350 North Mart Plaza, Junior High School. **$800,000-$900,000.** CD 6/24.

▲ **Miss., Oxford**—HOSPITAL—City, City Hall, 100-bed brick, concrete, steel, etc., hospital. **$1,500,000.**

▲ **Neb., Fairbury**—STEAM GENERATING UNIT—City, Pub. Wks., City Hall, 12,650 KW steam generating unit for municipal power plant. **$2,200,000.** Lutz & May, Finance Bldg., Kansas City, Mo., consult. engrs. CD 1/29/57.

▲ **N. J., Bridgewater Twp. (Somerville P. O.)**—SCHOOL—Bd. Educ., Bridgewater Twp., plans by Scrimenti, Swackhamer & Perantoni, 205 W. Main St., intermediate school in northwestern part of Twp., **$1,250,000;** plans by Seidel & Hickey, 1 Elm Row, New Brunswick, school, Newman's Lane, **$750,000.**

▲ **N. J., Teaneck**—CIVIC CENTER—Teaneck Twp., defeated bonds Nov. 3, 60,000 sq. ft. Civic Center, Queen Anne Rd. **$1,250,000.** CD 9/28.

▲ **N. J., Trenton**—STATE AGRICULTURE, etc.—New Jersey Dpt. Treasury Division of Purchase & Property, State House, preliminary plans by Albert A. Kauffmann, 252 N. Broad St., Elizabeth, state agriculture, offices, laboratories. Site not selected, **$2,500,000** (no appropriation).

▲ **N. J., Trenton**—LIBRARY, etc.—State Bd. Institutions & Agencies, State House, library, restaurant, recreation and classroom unit at New Jersey School for Deaf, **$1,000,000.**

▲ **N. J., Verona**—GERIATRICS—Bd. Freeholders Essex Co., Court House, Newark, plans by Epple & Seaman, 901 Broad St., Newark, 200-bed geriatrics, Overbrook Hospital, **$1,000,000.**

▲ **N. Y., Brooklyn**—HOUSING—New York City Housing Auth., 299 Broadway, New York, Zone 7, Proj. No. NY-5-58, Utica Houses, 115 families, Bergen and Dean Sts. and Schenectady Ave. **$1,150,000.**

▲† **N. Y., New York**—AIR-CONDITIONING POST OFFICE—General Services Admin., New York Region, 250 Hudson St., Zone 13, plans by Greenberg & Ames, archts.-engrs., 303 4th Ave., air-conditioning Post Office, Morgan Annex, 341-9th Ave. **$7,000,000.** Guy Panero, 630-3rd Ave., New York, N. Y., engrs.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, plans by Lorimer Rich & Assoc., 35 W. 53rd St., Zone 19, Proj. NYS-96, Mill Brook Houses extension, Cypress Ave. and East 135th St. **$1,250,000.** CD 4/3/52.

▲ **N. Y., New York**—HOUSING, etc.—New York City Housing Auth., 299 Broadway, Zone 7, plans by Architects Associated, 551 5th Ave., Alexander Hamilton Houses, Proj. NYS-81, incl. five 21 story apartments, community center, children's center, health station, stores and playground, 7th and 8th Aves., West 141 to West 144th Sts. **$23,320,000.** To go ahead Oct. 1960. CD 3/5/58.

N. C., Lumberton—HOSPITAL—Comrs. Robeson Co., Courthouse, plans by J. N. Pease & Co., 2925 N. Independence Blvd., Charlotte, 50 bed hospital addn. **$825,000.**

O., Cleveland—GARAGE—Cleveland Transit System, 1404 E. 9th St., Zone 14, plans by Dalton & Dalton, The Arcade, Zone 14, bus garage, Superior Station, **$750,000.** Bids in Spring.

▲ **O., Dayton**—HIGH SCHOOL—Bd. Educ., 348 W. 1st St., plans by Freeman Pretzinger, Reibold Bldg., high school, southwest side, **$2,000,000.** CD 1/11/55.

O., Jefferson—HIGH SCHOOL—Jefferson Local School Dist., high school, **$900,000.**

▲ **O., Parma**—SCHOOLS, etc.—Bd. Educ., 5401 W. 54th St., Zone 29, bond election May 5, Junior High School, 2 elementary schools, bus garage, and school addns. **$3,000,000.** CD 6/5/58.

▲ **O., Toledo**—SCHOOLS—Bd. Educ., 121 Southard St., plans by Samborn, Steketee & Assocs., Otis & Evans, 1214 Cherry St., South Toledo High School, Detroit and Glanzman Rd., **$3,250,000;** plans by Hahn & Hayes, 1619 Canton St., replacing East Side Central School, **$1,000,000;** plans by Hoffman, Troy & Ferguson, Spitzer Bldg., Elizabeth-Belmont Ave. School, **$1,200,000;** plans by Bellman, Gillett & Richards, 1600 Madison Ave., West Toledo High School, Bowman Park Site, **$3,250,000.** CD 11/9.

▲ **Tex., LaMarque**—HOSPITAL—Galveston County, c/o Courthouse, Galveston, plans by Page, Southerland & Page, 602 W. Ave., Austin, county memorial hospital **$2,500,000.** CD 10/15, under Tex., Galveston.

▲ **Tex., San Antonio**—SCHOOL—Alamo Heights Independent School Dist., 150 E. Fair Oaks, plans by Bartlett Cocke, 3501 Broadway Ave., high school, Alamo Heights. **$1,500,000.**

▲ **Va., Alexandria**—SCHOOL—Alexandria Bd. Educ., City Hall, plans by Williams & Assoc., 300 Montgomery St., high school, 17 acre Forest Park site, off Janneys Lane. **$2,000,000.** CD 10/17/55.

▲ **Va., Bedford**—SCHOOL—Bedford Co. School Bd., const. Consolidated School, **$1,000,000.**

▲ **Va., Luray**—SCHOOLS—Page Co. School Bd., Luray, high school, Stanley, **$750,000.** CD 4/13/53; elementary school, Luray, **$1,000,000,** CD 5/9/52.

▲ **Va., Norfolk**—SCHOOL—Norfolk City School Bd., City Hall, elementary school, Azalea Gardens **$1,350,000.** Bids late January 1960. CD 11/2/56.

▲ **Wash., Cheney**—SCIENCE—Eastern Washington College of Educ., plans by George Rasque & Sons, Washington Bank Bldg., Spokane, 2 story, 100,000 sq. ft. science bldg. **$2,000,000.** Bids about February or March. CD 1/23.

▲ **Wash., East Wenatchee**—SCHOOL—Eastmont School Dist. 206, plans by Walter & Donn Rothe, 807 W. Yakima Ave., Yakima, Junior High School, **$1,000,000.** Bids April 1960. DeWitt C. Griffin, Lyon Bldg., Seattle, engr. CD 5/21.

▲ **Wash., Spokane**—SCHOOL—Central Valley School Dist. 356, N. 607 Pines Rd., plans by Victor L. Wulff, West 1526 Riverside Ave., Zone 11, Senior High School, **$1,320,750.**

Wis., Appleton—SCHOOL—Bd. Educ., plans by R. N. Le Vee & Assocs., 1000 W. College Ave., Edison Elementary School. **$872,000.**

▲ **Wis., Brookfield**—SCHOOL—Union High School Dist. No. 1, 16400 Gebhard Rd., plans by Grassold-Johnson & Assocs., 734 N. Jefferson St., Milwaukee, Zone 2, Senior High School, **$2,700,000.**

Ont., Kingston—THEATRE—Bd. Trustee, Queen's University, theatre, **$750,000.**

Que., Joliette—CITY HALL—City, City Hall, plans by Auguste Martineau, 556 Martineau St., 6 story, bsmnt., 50 x 153 ft. city hall, **$893,000.**

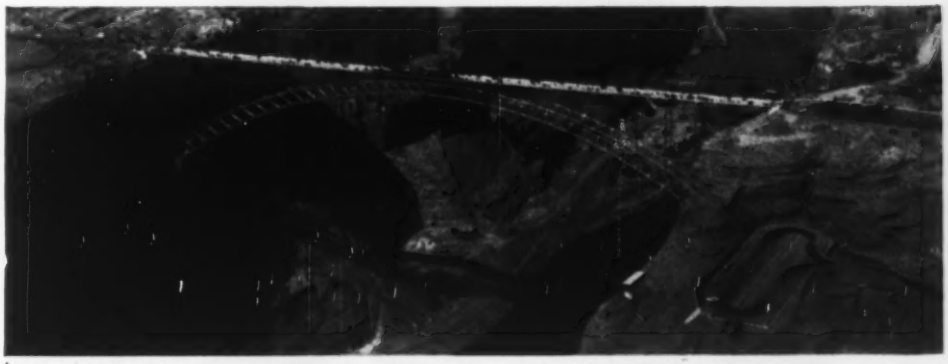
▲ **Que., Quebec City**—SCHOOL—Catholic School Comm. of Quebec, 898 Richelieu St., plans by Rene Blanchet,

(Continued on page 90)

Bridges by Yuba

The world-renowned $63 million Richmond-San Rafael Bridge, crossing upper San Francisco Bay, used some 50,000 tons of steel—most of which was fabricated in Yuba plants in the area, and erected by Yuba field crews, including all the trusses on the 36 spans—each 289 ft.

BIG



The recently completed Glen Canyon Bridge in Arizona is the world's highest (750 ft.) arch bridge. Completely fabricated and assembled at Yuba's Judson Pacific-Murphy plant, this structure used 4,000 tons of steel, was erected ahead of schedule.

HIGH

The Hawkins Bar Bridge lies in a remote mountain area, 8 miles east of Willow Creek in California. Chances are you'll never see it. But it typifies the smaller bridges that have contributed to Yuba's widely recognized leadership in bridge building at its best.

or CREEK SIZE

Design • Fabrication • Erection

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YUBA

(Continued from page 88)

53 d'Auteuil St., 3 story, L-shaped Joseph-Francois Perreault School, $1,000,000.

▲ **Sask., Regina**—POWER PLANT—City, City Hall, power plant extension, convert from bunker fuel to natural gas firing, $1,825,000. K. W. Pattison, city engr.

COMMERCIAL BUILDINGS

▲ **Calif., Dunsmuir**—HOTEL, etc.—Royal Hotels, Inc., 821 Market St., San Francisco, plans by Kal H. Porter, 3850 Middlefield Rd., Palo Alto, hotel and developments. $2,000,000. CD 7/25/57, under Calif., Shasta Springs.

▲ **Calif., Pomona**—ADMINISTRATION, etc.—Congregational Conference Office, 3125 W. Adams St., Los Angeles, plans by Kenneth N. Lind, 943 N. La Cienega Blvd., Los Angeles, 4 story, brick, masonry admin. bldg., 3 circular retirement home units, Mount San Antonio Gardens, Harrison and Central Sts. $4,000,000.

▲ **Calif., San Rafael**—APARTMENT—Stolte, Inc., 8451 San Leandro St., Oakland, and Terra Linda Corp., 6158 Redwood Hy., San Rafael, plans by Ned Abrams & Assoc., 575 Britton St., Sunnyvale, 151 unit apartment development twenty 2 story wood frame bldgs., T&G roof, swimming pool. $3,000,000.

▲ **Colo., Denver**—BANK—Colorado National Bank, 17 and Champa, plans by Victor Gruen & Assocs., 135 S. Doheny Drive, Beverly Hills, Calif., bank rebuilding, remodeling. $1,000,000.

▲ **Conn., Danbury**—HOUSES—Aunt Hack Ridge Estates Inc., Aunt Hack's Hill Rd., 260 houses "Aunt Hack Ridge Estates", Aunt Hack's Hill Rd., recreational area, incl. baseball field, roads, etc. $2,600,000.

▲ **Conn., Hartford**—OFFICE—Aetna Life Insurance Co., 151 Farmington Ave., plans by Ebbets, Frid & Prentice, 862 Asylum Ave., 130,000 sq. ft. air-conditioned brick home office East Wing addn., 151 Farmington Ave. $3,375,000, Jaros, Baum & Bowles, 415 Lexington Ave., New York, N. Y., consult. engrs. Hubbard, Lawless & Blakeley, 110 Whitney Ave., New Haven, mechanical engrs. A. John Macchi, 44 Gillett St., structural engr. CD 11/4.

▲ **Conn., Plainville**—HOUSES—Geryk Development, Camp St., 200 houses, Camp St. $2,000,000.

▲ **Conn., Plainville**—HOUSES—Arthur Primus, Bristol Road, Waterbury, 150 houses, Camp St. Second Section. $1,500,000.

▲ **Conn., West Hartford**—SCHOOL—Archdiocese of Hartford, Chancery Office, 140 Farmington Ave., Hartford, plans by Russell & Gibson & Assocs., 1009 Farmington Ave., Catholic High School, N. Main St. and Wampanoag Dr., $1,000,000. Fred S. Dubin & Assocs., 178 S. Whitney St., Hartford, consult. engrs. A. B. Onderdonk, 2512 Main St., Glastonbury, staff engr. CD 1/5.

D. C., Wash.—SCHOOL—Sts. Constantine & Helen Greek Orthodox Church, 4115 16 St. S.W., plans by Thomas Locraft & Assocs., 1518 P St. N.W., Sunday School bldg. and auditorium addn. $700,000. Bernard Locraft, 1179 New Hampshire Ave. N.W., consult. engr.

▲ **Fla., Brooksville**—RESIDENTIAL DEVELOPMENT—New Haven Clock & Watch Co., 140 Hamilton, New Haven, Conn., residential development. $30,000,000. Rader & Associates, First National Bank Bldg., Miami, consult. engrs.

▲ **Fla., Palm Beach**—APARTMENT, etc.—Florida Land Investment Corp., c/o Pachner & Robson, archts., 207 S. County Rd., 6 story, 90,000 sq. ft. air-conditioned co-op apartment and swimming pool, S. County Rd. and S. Ocean Blvd. $1,000,000.

▲ **Hawaii, Hilo**—HOTEL—W. H. Hill, KeoKeo Loop Rd., hotel, swimming pool. $1,250,000.

▲ **Idaho, Idaho Falls**—HOSPITAL—Latter Day Saints hospital, plans by J. A. Hamilton Assocs., 425 S. E. Harvard St., Minneapolis, Minn., hospital addns. $1,237,000.

▲ **Ill., Chicago**—HOSPITAL—Children's Memorial Hospital Development Program, 104 S. Michigan Ave., 5 story Children's Memorial Hospital wing addn., 707 W. Fullerton Ave. $5,500,000.

▲ **Ill., Oak Park**—NURSES HOME, etc.—Oak Park Hospital, 525 Wisconsin Ave., Oak Park Hospital addn., school of nursing and nurses home. $1,700,000.

▲ **Ind., Indianapolis**—AUDITORIUM—Butler University, 4600 Sunset St., plans by John M. Johanson, 70 Elm St., New Canaan, Conn., auditorium. $2,000,000. Fred S. Dubin Assocs., 178 S. Whitney St., Hartford 5, Conn., consult. engrs.

▲ **Md., Rockville**—COUNTRY CLUB etc.—Lakewood Management Inc., 4910 Cordell Ave., Bethesda, plans by Clark T. Harmon, 4630 Montgomery Ave., Bethesda, country club, incl. golf course, three swimming pools and clubhouse. $1,500,000.

▲ **Md., Suitland**—APARTMENT—David Isen, 1511 K St. N.W., Wash., D. C., plans by Collins, Krondstadt & Assoc., 7705 Georgia Ave. N.W., Wash., D. C., 109 unit apartment Swann Rd. and Sycamore Lane. $1,090,000.

▲ **Minn., St. Louis Park**—SHOPPING CENTER, etc.—Texa-Tonka Shopping Center, A. Fine, pres., 2736 Hennepin Ave., Minneapolis, 270,000 sq. ft. shopping center addn., 7 apartments, 12 offices, Texas Ave. and Minnetonka Blvd. $5,000,000.

▲ **Mo., Creve Couer**—OFFICE—Monsanto Chemical Co., 800 N. Lindbergh Blvd., plans by Vincent G. Kling, 917 Corinthian Ave., Phila., Pa., 3 level, 100,000 sq. ft. porcelainized insulated steel sandwich panels, etc. reln.-con. office, south of Olive St. Rd. east of Lindbergh Blvd. Over $1,000,000. Constr. January-February 1960.

▲ **Mo., Raytown**—APARTMENT—Frank B. Vandegrift, c/o Morley & Geraughty, archts., 2500 Johnson Dr., Kansas City, Kan., 2 and 3 story, 338-unit apartment, incl. off street parking. $4,000,000.

▲ **Neb., Omaha**—NURSES DORMITORY, etc.—St. Joseph Hospital, 2305 S. 10th St., plans by John Latenses & Sons, 1307 Farnam, 12 story, 120,708 sq. ft. nurses dormitory and educational bldg. $2,500,000.

▲ **N. J., Freehold**—HOUSES—J. DiLeo Agency, R. D. No. 2, P. O. Box 439, Nixon, 100 houses, Rte. 9, Marlboro Twp. $1,800,000. Berg & O'Brien, Livingston Ave., New Brunswick, consult. engrs.

▲ **N. J., Mantoloking**—HOUSES—J. DiLeo Agency, R. D. No. 2, P. O. Box 439, Nixon, 100 houses, Rte. 9, $1,800,000. Berg & O'Brien, Livingston Ave., New Brunswick, consult. engrs.

▲ **N. Y., Nanuet**—SHOPPING CENTER—Bernard Siegel & Gilbert Ancowitz, c/o Herbert Fleischer, archt., 254 5th Ave., New York, Zone 1, shopping center, Rte. 59. $1,000,000.

▲ **N. Y., New York**—MUSEUM WING—Museum of Modern Art, 11 West 53rd St., plans by Philip Johnson Assocs., 375 Park Ave., 8 story museum wing, 11 W. 53rd St. $7,000,000.

N. Y., New York—SYNAGOGUE, etc.—Young Israel of Concourse, 1015 Walton Ave., Zone 52, plans by Simon B. Zelnik, 230 W. 13th St., Zone 11, synagogue and community center, northeast corner of East 165th St. and Grand Concourse. $750,000. Bids in 1960. CD 8/25/49.

▲ **N. Y., Roosevelt**—DEPARTMENT STORE—Orbach's Department Store, 5 West 34th St., New York, N. Y., plans by Charles Luckman Assocs., 9220 Sunset Blvd., Los Angeles, Calif., department store. $1,000,000. Fred S. Dubin Assocs., 178 S. Whitney St., Hartford 5, Conn., engrs. To go ahead 1960.

▲ **N. C., Greensboro**—SHOPPING CENTER—Bowles Realty & Insurance Co., Piedmont Bldg., plans by Lowenstein & Atkinson, 1001 E. Bessemer Ave., Northside Shopping Center. $2,000,000.

N. C., Kannapolis—CHURCH SANCTUARY—North Kannapolis Baptist Church plans by B. F. Sides, Jr., Austin Bldg., Albemarle, church sanctuary, $450,000.

▲ **N. C., Winston-Salem**—APARTMENT—Stratton Coyner Reynolds Bldg., will not construct 264,000 sq. ft. apartment. $1,600,000. Stinson, Arey & Hall, 639-A W. 5th St., archt. Project abandoned. CD 6/12.

▲ **N. D., Bismarck**—HOSPITAL—Benedictine Sisters of the Annunciation plans by Thorshov & Cerny, Inc., 400 Metropolitan Bldg., Minneapolis, Minn., 1 story, bsmt. St. Alexius Hospital addn. $1,144,120.

▲ **O., Canton**—SHOPPING CENTER—Mellett Homes, Inc., 3741 6th St., N. W., 32 unit shopping center, W. 11th St. and Whipple Rd. $3,250,000.

▲ **O., Mansfield**—HOSPITAL—Mansfield General Hospital, 335 Glessner Ave., plans by H. S. Jones, A.I.A., 3 N. Main St., hospital. $2,225,000. CD 11/19/58.

▲ **O., Marion**—SHOPPING CENTER—Cleo Ludwig, c/o Ludwig & Kibby Enterprises, 515 E. Center St., shopping center, on 42 acre Mar-O-X Del golf course. $5,000,000.

▲ **Pa., Phila.**—HIGH SCHOOL, etc.—Mount Saint Joseph Academy, Germantown and Northwestern Aves., plans by Nolen & Swinburne, 226 S. 16th St., high school and convent. $1,000,000. Severud, Elstad & Kruger, 415 Lexington Ave., New York, N. Y., concult. engrs.

▲ **S. C., Columbia**—OFFICE—South Carolina Baptist Bd., Hampton St., office. $1,000,000.

▲ **S. C., Folly Beach**—MOTEL, etc.—Folly Beach Ocean Front Enterprises, Folly Beach, plans by Demetrios C. Liollio, 173 Savannah Hy., Charleston, motel and pavilion resort. $1,500,000. CD 7/24.

▲ **Tenn., Bristol**—HOSPITAL—Memorial Hospital Assn., hospital addn. $1,144,321.

▲ **Tex., Dallas**—RESEARCH CENTER—J. H. Wadley, Texarkana, and Dr. Jos. M. Hill, Research Center & Blood Bank, 3600 Gaston Ave., Dallas, 5 story research center addn. $1,500,000.

▲ **Tex., Houston**—GERIATRICS BLDG. etc.—Texas Medical Center, 1133 M.D. Anderson Blvd., Geriatrics (Health of Aged) $2,250,000, CD 3/27; Graduate Education $2,000,000; 12 ft. underground tunnels to connect all buildings in Medical Center $5,000,000; Parking Garage No. 1 for Medical Center, $1,000,000; Public Health College $2,250,000; Institute of Life Chemistry $3,000,000. Constr. 1960.

Tex., Odessa—SHOPPING CENTER—Louis Rochester & Thomas D. Murphy, Jr., Odessa, brick, tile shopping center, Clements St. and S. Crane St. $400,000.

▲ **Tex., San Antonio**—APARTMENTS—Joe Rainey Manion & Co., Manion Bldg., 301 Broadway Ave., plans by Ellis F. Albaugh & Assocs., 3800 San Pedro Ave., 10 story luxury apartments on top existing 3 story bldg. $1,750,000. W. E. Simpson Co., 945 Milam Bldg., consult. engrs. CD 11/18.

▲ **Va., Alexandria**—APARTMENTS—Wm. & Jas. Cafritz, Inc., 2504 Osage, Adelphi, Md., apartments, Edsall Rd. at Jones Point Bridge. $3,300,000.

▲ **Va., Annandale**—SHOPPING CENTER—John C. Webb, 110 N. Payne St., Fairfax, Little River Shopping Center, Little River Turnpike and Annandale Rd. $11,000,000.

▲ **Va., Colonial Heights**—SHOPPING CENTER—Tri-City Realty Co., 104 Pickwick Ave., shopping center. $1,000,000.

Va., Richmond—BOWLING CENTER—Richmond Bowling, Inc., Falls Church, plans by Anthony F. Musoline, Falls Church, bowling center, Southside Plaza. $750,000.

▲ **Va., West Springfield**—HOME SUBDIVISION—Edward R. Carr, Inc., 6458 Hibbing Ave., Springfield, plans by Richard Gomersall, 109 S. Pitt St., Alexandria, 100 home subdivision. $2,800,000.

▲ **Wash., Seattle**—MOTEL, etc.—Dorsey's, Inc., Northern Life Tower, Seattle, Zone 4, plans by D. W. Vicary, designer, 2307 Rainer Ave., and C. Ogden, archt., 1233 9 Ave. W., Coach House Motel, swimming pool, 4700 block on 25 Ave. N.E. $1,250,000.

▲ **Alta., Redcliff**—APARTMENTS—Redcliff Holdings Ltd., Redcliff, low rental apartments. $1,000,000.

▲ **B. C. Victoria**—HOSPITAL—Royal Jubilee Hospital Assn., 1900 Peel, plans by Townley & Matheson, 1376 Hornby, Vancouver, hospital addn. $2,500,000.

▲ **Que., Montreal**—HOTEL—Credit Foncier Franco-Canadian, 5th St. James St. E., plans by Basil Capes, 5140 Dundas St. W., Toronto, Ont., 6 or 10 story hotel, Cote de Liesse Rd., $1,000,000. Colin H. Copeman, 1117 St. Catherine St. W., Rm. 401, assoc. archt. (Correction—architect). CD 10/29.

▲ **Que., Quebec City**—COLLEGE—Sisters of the Notre Dame Congregation, Notre Dame College of Bellevue, 1605 Ste. Foy Rd., plans by Philippe Cote, 19 Bon Air St., Ste. Foy, 4 story, 245 ft. long college addn. $2,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Redding**—PLANT—Calaveras Cement Co., 315 Montgomery St., San Francisco, plans by John Carl Warnecke & Assoc., 111 New Montgomery St., San Francisco, cement plant, $14,000,000. Fuller Co., 124 Bridge St., Catasauqua, Pa., and Homan & Lawrence Engr. Co., 1295 Folsom St., San Francisco, consult. engrs. CD 11/12.

▲ **Fla., Brooksville**—INDUSTRIAL PARK—New Haven Clock & Watch Co., 140 Hamilton, New Haven, Conn., industrial park. $30,000,000. Rader & Associates, First National Bank Bldg., Miami, consult. engrs.

▲ **Ind., Jeffersonville**—PLANT ADDNS.—Colgate-Palmolive Co., 6th St., 4 story plant addn., 2 story wing to shipping center, 2 story warehouse, and 1 story office, $1,250,000.

▲ **Ind., Rushville**—FOUNDRY—Perfect Circle Corp., 1957 S. Washington St., Hagerstown, plans by Giffels & Rossetti, 1000 Marquette Bldg., 243 W. Congress St., Detroit 26, Mich., foundry to make piston ring castings, 80-acre site north of here on east side of S.R. 3, adjoining Nickel Plate right-of-way. $3,000,000. Bids first of 1961.

Me., Aroostock—PLANT—Arrostock Pototao Products, plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, starch extraction plant. $800,000. Fred S. Dubin Assoc., 178 S. Whitney St., Hartford 5, Conn., engrs.

▲ **Mass., Boston**—WAREHOUSE, etc.—Westinghouse Electric Corp., 10 High St., plans by Samuel Glaser Assoc., 234 Clarendon St., warehouse and accounting div., New York Streets Area. Approx. $1,000,000. CD 10/8.

▲ **Mo., St. Louis**—PLANT—Independent Fish Co., 2742 Market St., Zone 3, plans by Russell, Mullgardt, Schwarz, Van Hoefen, 1621 Chemical Bldg., 721 Olive St., Zone 1, plant to incl. offices, wholesale and retail sales division, processing, warehousing and shipping facilities, Mississippi and Chouteau Aves. $1,250,000. Let contracts in 1960.

▲ **N. Y., Tonawanda**—PLANT—Ashland Oil & Refining Co., 1409 Winchester Ave., Ashland, Ky., hydrodealkylation plant to produce synthetic benzene and naphthalene from petroleum, River Rd.

▲ **O., Lorain**—SLAG CRUSHER—National Tube Div., United States Steel Corp., E. 28th St. and Pearl Ave., dust free slag crusher, Sheffield. $1,000,000. CD 5/1/56.

▲ **S. C., Anderson**—PLANT—Duke Power Co., 430 S. Church St., Charlotte, N. C., steam generating plant, near here. $200,000,000.

▲ **Tenn., Hampshire**—COMPRESSOR PLANT—Columbia Gulf Transmission Co., Columbia, 115,000 lb. compressor plant to boost natural gas delivery on distr. network. $1,500,000.

▲ **Tex., Houston**—FEED MILL—Lorne Van Stone, Lynn Storm and Dean Osmun, c/o North Houston Industries, Inc., E. J. Stacey, pres., South Coast Bldg., feed mill. $2,000,000.

▲ **Tex., Orange**—PLANT, etc.—Philips Chemical Co., c/o Adams Terminal, Houston (subsidiary Phillips Petroleum Co., 6910 Fanin St., Houston), 60 million lb. per year capacity carbon black plant, $9,000,000, lighting sys. $90,000, water sys. $75,000.

▲ **Que., Varennes**—MILL—Quebec South Shore Steel Corp., 620 Cathcart St., Montreal, plans by Koppers of Canada Ltd., subsidiary of Koppers Co., Inc., Koppers Bldg., Pittsburgh, Pa., U. S. A., 150,000 ton integrated steel mill. $22,000,000.

UNCLASSIFIED

Fla., Tampa—PARKING FACILITIES—City, City Hall, parking facilities, $935,000. City Engineering Dpt., consult. engr.

▲ **Ind., Hammond**—ELECTRIC GENERATING STATION—Northern Indiana Public Service Co., 5265 Hohman St., electric generating station, Burns Harbor on Lake Michigan, $30,000,000.

▲ **Va., Alexandria**—OFF-STREET PARKING FACILITY—City, City Hall, off-street parking facility $818,000; off-street parking facility $400,000.

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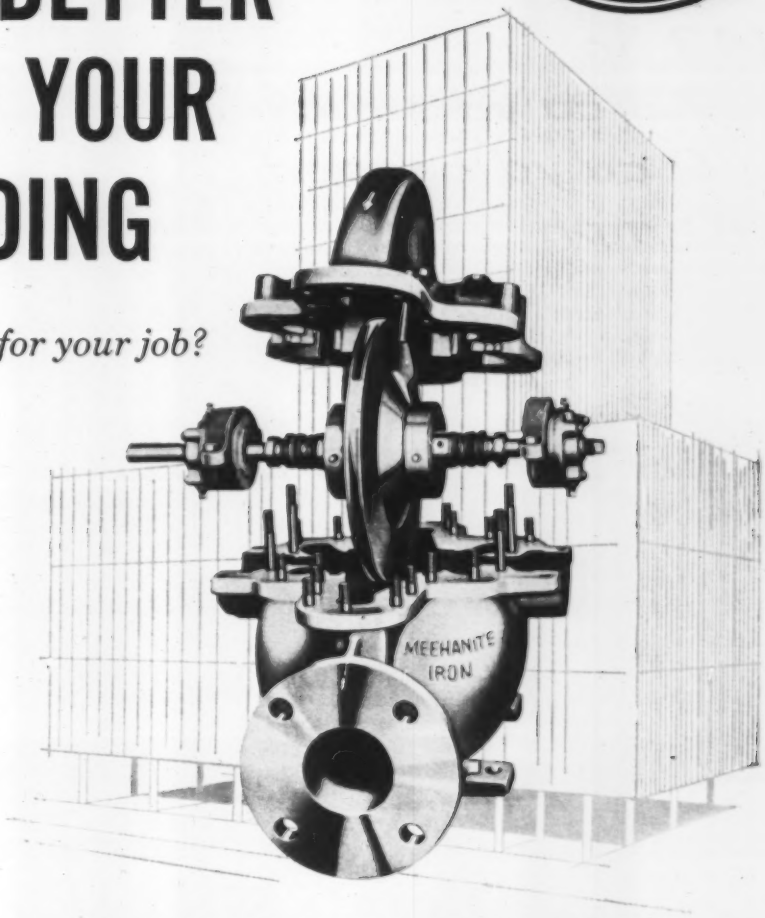

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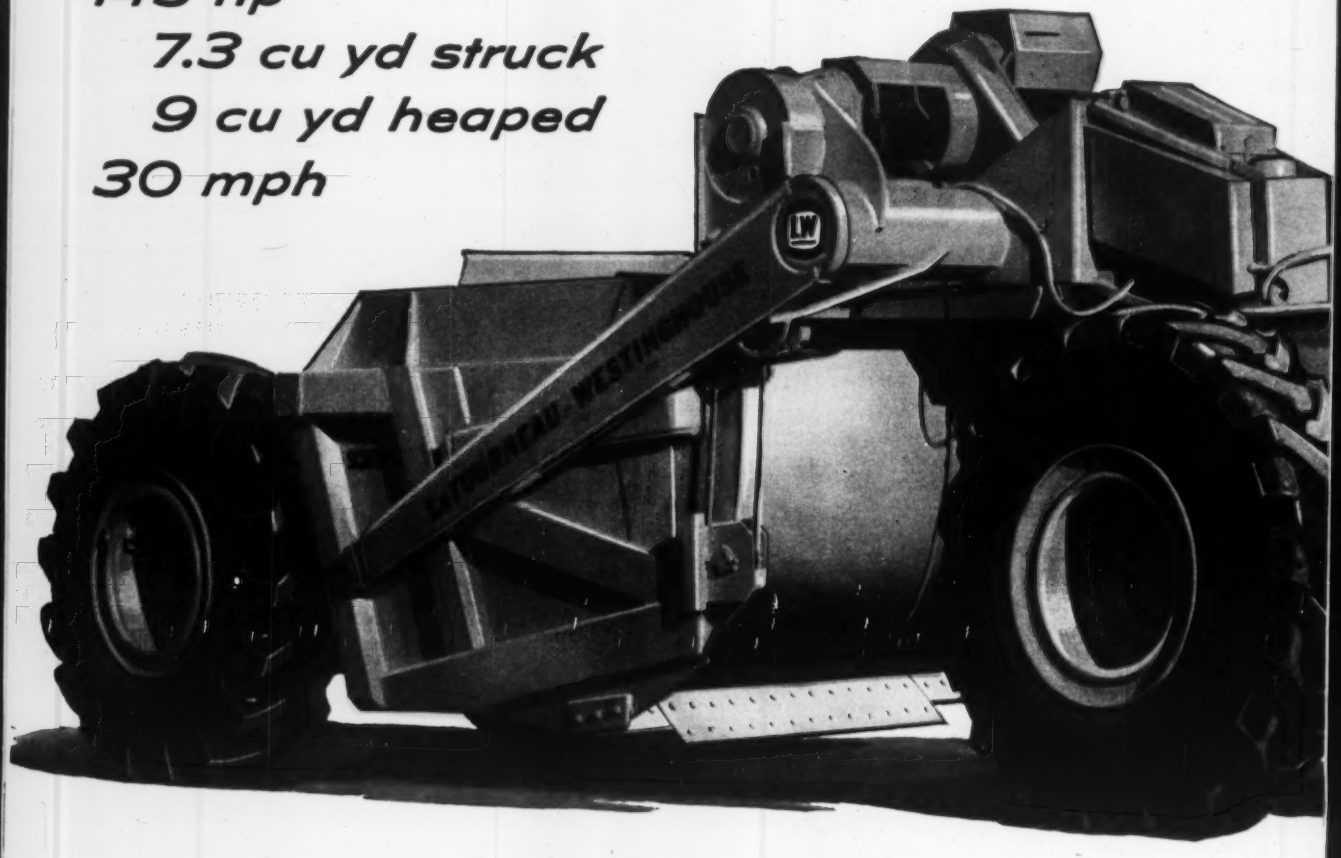

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D Tournapull ALONE in its size-range offers you:

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BEST POWER-WEIGHT RATIO: each of its 143 "horses" has to power only 299 lb. Move *payweight*, not deadweight. Best on grades, fastest accelerating.

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BIGGEST BRAKES: 2,800 square-inches of sure-stop surface, up to 4 times more than other scrapers. Your operator uses higher speeds more confidently.

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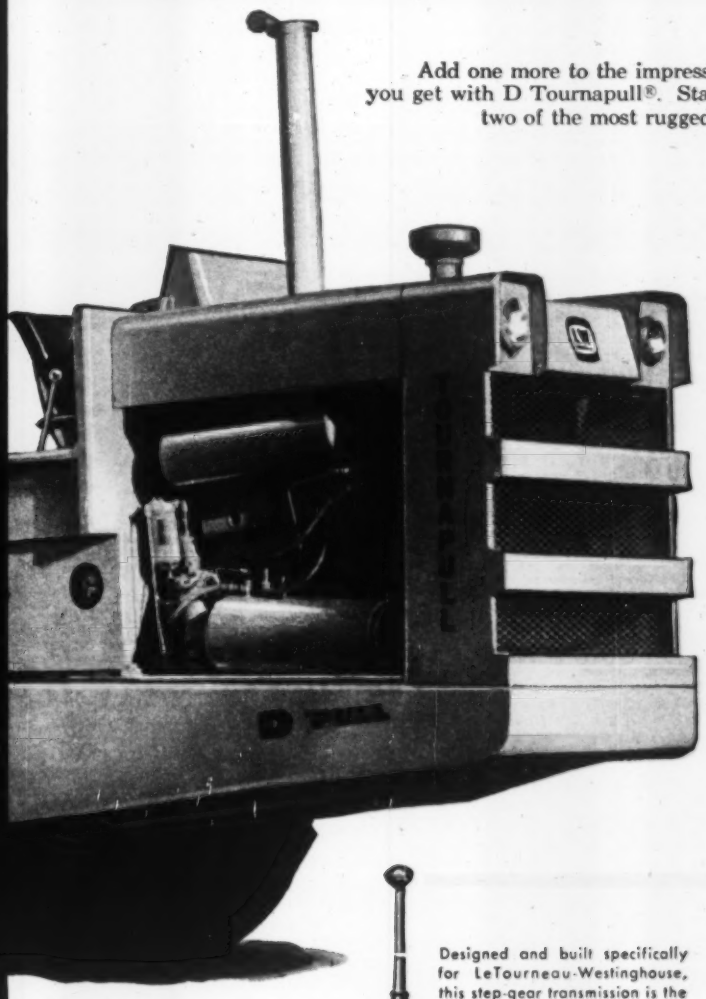
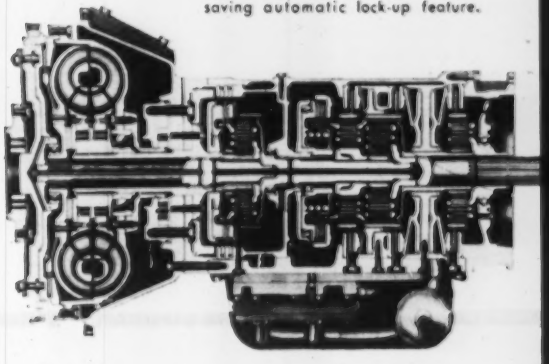


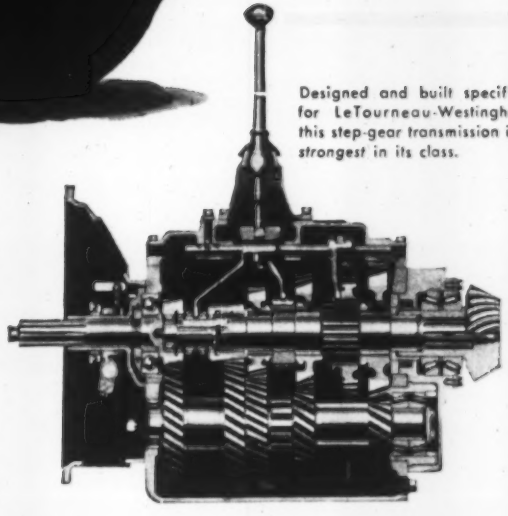
1 *Power-shift with torque converter:*

If you often work in loose or soft materials, and your machines are usually subject to rapidly changing loads, you will want your "D" equipped with the Allison Torqmatic CLT 3340 transmission, now available. It *automatically* adjusts speed and torque to your load, keeps your D 'Pull working at fastest practical speed. Cushions engine and drive-train from shock-loads for smoother operation, longer machine life. Infinite speeds through four ranges, to 30 mph; two reverse to 6.9.

Allison transmission includes power-saving automatic lock-up feature.



Designed and built specifically for LeTourneau-Westinghouse, this step-gear transmission is the *strongest* in its class.



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BUILDINGS—LB & CA

G. L. Rugo & Sons, Inc., 80 Boylston St., Boston, Mass., CA **$571,711,** est. $625,000, E-50-8 Contr. 1, MALE DORMITORY, State Teachers College, BRIDGEWATER, MASS. Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Nov. 13. CD 11/18, under LB.

▲ **George B. H. Macomber Co.,** 25 Fordham Rd., Allston, Mass., CA Over **$1,000,000,** ACADEMIC QUADRANGLE, WALTHAM, MASS. Brandeis University, 415 South St., Waltham, Mass. CD 11/4.

Stone & Webster Engineering Corp., 49 Federal St., Boston, Mass., CA **$500,000,** 2 story, 80 x 251 ft., masonry, steel PLANT addn., WINDSOR, CONN. Combustion Engineering, Inc., Central Ave., Windsor, Conn. Stone & Webster Engineering Corp., 49 Federal St., Boston, Mass., archts.-engrs. CD 11/9/55.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 8 Maryland

STREETS AND ROADS

December 11 New Jersey

▲ **N. J., Camden**—BA 12/17—Purchasing Bd., at office of Mayor, 16th Floor, City Hall, water supply imprvs., Morris-Delair and Puchack Run water treatment plants, Contr. 12A, general constr.; Contr. 12B, electrical work; Contr. 12C, heating and ventilating; Contr. 12D, plumbing. Plans deposit $35. Havens & Emerson, Room 2701, Woolworth Bldg., 233 Broadway, New York 7, N. Y., engrs. CD 1/22.

BUILDINGS—BA

▲ **Md., Towson**—SCHOOL—BA 12/10—Baltimore Co. Bd. Educ., Aigburth Rd., Zone 4, masonry Holabird Junior High School, Delvale Ave. $1,000,000. Plans deposit $100. Tyler, Ketcham & Meyers, 1020 St. Paul St., Baltimore, Zone 2, archts.

Md., Rockville — SCHOOL — BA 12/17 — Montgomery County Bd. Educ., Rockville, Gaithersburg Elementary School rehabilitation, Gaithersburg. $550,000. Plans deposit $30. Duane & Lawrence, 1726 M St. N.W., Wash., D. C., archts. Scullen & Assoc., 7939 Norfolk Ave., Bethesda, engrs. CD 5/5.

▲ **Pa., Phila.**—HOSPITAL—BA 1/20—General State Auth., 18th and Herr Sts., Harrisburg, Eastern Pennsylvania State School and Hospital, Bensalem Twp. $7,000,000. Plans deposit $150. V. G. Kling, 917 Corinthian Ave., Zone 30, archt. A. F. Jones, c/o owner, ch. engr. CD 3/17.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany, Bids opened 11/19,

Peter Kiewit Sons, 3604 New Court State Rd., Syracuse, N. Y., LB **$1,396,859,** est. $1,850,000, (11 bidders), b. conc. pavt. 8.49 mi., wid'n. and repair exist. 12 sp. I-beam br. 719.9 ft. Starkey Dresden Pt. 2 SH 8353 Rte. 14 RC 59-114, Yates Co. CD 10/20.

H. L. Bishop, Inc., and South Shore Contg. & Dredging Corp., 100 West Ave., Patchogue, N. Y., LB **$717,750,** (10 bidders), 4 stone groins for beach protection at Rockaway Beach near Arvenne between B. 71st and B. 62nd Sts., Queens Co., NEW YORK. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids Nov. 19. CD 10/20.

▲ **Coleman Bros. Corp.,** Readville, Mass., LB **$1,969,403** (15 bidders) 2,000 ft. viaduct section, Niagara Parkway, Niagara Co., Contr. NP-16, NEW YORK. Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y., Bids Nov. 24, CD 10/26;

Allis-Chalmers Mfg. Co., 100 Church St., New York 7, N. Y., LB **$1,303,040,** (3 bidders), two 400 M.V.A. auto-transformers, Niagara Co., Contr. NP 33 (New York);

Bethlehem Steel Co., 25 Broadway, New York 4, N. Y., LB **$204,693,** (3 bidders), rails and accessories for two power plants, Niagara Power Proj. NP-44 (New York). CD 10/28.

Verona Constr. Co., 251½ Grove Ave., Verona, N. J., LB **$508,398,** Contr. B, municipal sewerage sys., Bridgewater, SOMERVILLE, N. J. Bridgewater Twp., Municipal Bldg., Somerville, N. J., CD 11/24/58;

C. J. Pardum & Sons, Remsen Ave. and Trinity Place, New Brunswick, N. J., LB **$411,502,** Contr. A, municipal sewerage sys., (Somerville, N. J.).

▲ **Trimble Co.,** 320 E. North Ave., Pittsburgh, Pa., CA Est. **$2,500,000,** mausoleum, PITTSBURGH, PA. Allegheny Cemetery, 4734 Butler St., Pittsburgh, Pa. Harley, Ellington & Day, Inc., 153 E. Elizabeth St., Detroit, Mich., archt.

▲ **MARYLAND**—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 2, Bids opened 11/17,

Burkholder & Burkholder, Winchester, Va., LB **$1,972,470,** (12 bidders), grading, drainage, surf. 5.957 mi. US 40 in Hagerstown, W-428-2-620, Washington Co. CD 11/4.

▲ **MARYLAND**—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 2, Bids opened 11/24,

Regal Constr. Co., Upper Marlboro, Md., LB **$2,069,563,** (12 bidders), 8 mi. road work, 4 bridges, 4 box culverts, near Washington, P-631-23-24-27-320, Prince George Co. CD 11/10.

A. J. Ellis Constr. Co., 5555 Branchville Rd., College Park, Md., LB **$500,167,** (10 bidders), Contr. 2487-W, water main River Rd. to east of South Glen Rd., Bethesda, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Nov. 23. CD 11/10.

BUILDINGS—LB & CA

Comet Constr. Corp., 10-37-47 Rd., Long Island City, N. Y., CA **$848,219,** general contract Leo F. Giblyn SCHOOL, Miller Ave., Cedar St. and South Ocean Ave., FREEPORT, N. Y. Bd. Educ. Union Federated School Dist. No. 9, Town of Hempstead, Freeport High School, Freeport, N. Y. Bids Oct. 29. CD 10/9.

▲ **Zukerman Brothers,** 9315 Ft. Hamilton Parkway, Brooklyn 9, N. Y., Owner Builds, **$33,000,000,** Hammels-Rockaway HOUSES, Title I Proj., Beach 74th St., Beach 90th St., Rockaway Beach Blvd. and Shorefront Parkway, HAMMELS (ROCKAWAY), N. Y. S. J. Kessler & Sons, 598 Madison Ave., New York 22, N. Y., archts. CD 11/14/56.

▲ **Zukerman Brothers,** 9315 Ft. Hamilton Parkway, Brooklyn 9, N. Y., Owner Builds, **$23,000,000,** Seaside-Rockaway HOUSES, Title I Proj., Beach 102 St., Beach 108 St., Railroad Tracks and Shore Front Parkway, SEASIDE (ROCKAWAY), N. Y. S. J. Kessler & Sons, 598 Madison Ave., New York 22, N. Y., archts. CD 11/16/56.

Hambly Constr., Inc., Oneonta, N. Y., LB **$539,000,** (7 bidders), general contract 120-Inmates, BLDG. No. 32, incl. service connections, Woodbourne Correctional Institution, WOODBOURNE, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids Nov. 18.

▲ **B. J. Lucarelli, Inc.,** 1100 McCarter Hy. Newark, N. J., CA **$1,206,500,** SCIENCE and CLASSROOM BLDGS., Teachers State College, Pompton Rd., Wayne, PATERSON, N. J. State of New Jersey, State House, Trenton, N. J. CD 5/21.

▲ **Gustav Hollstein,** Woodstone Rd., Rockaway, N. J., Owner Builds, **$1,000,000,** 76-unit GARDEN APARTMENT, Rte. 46, ROCKAWAY, N. J. Bagby & Catlin, 47A Broadway, Denville, N. J., archts. CD 7/28/58.

▲ **Jas. A. Murray,** 2684 Princeton Pike, Trenton, N. J., Owner Builds, **$1,500,000,** 2 story GARDEN APARTMENT, Sullivan Way, TRENTON, N. J. CD 11/26/58.

Jas. A. Murray, 2684 Princeton Pike, Trenton, N. J., Owner Builds, **$750,000,** 5 story, 60-unit APARTMENT, South Overbrook Ave., TRENTON, N. J. Morgan Davis, 45 4th St., North Arlington, N. J., archt.

▲ **Richard Zamore,** 67 Allendale Ave., Sadcle Brook, N. J., Owner Builds, **$2,500,000,** 75 HOUSES, Pascack Rd., Washington Twp., WESTWOOD, N. J. Rudolph L. Novak, 89 Central Ave., Clifton, N. J., archt.

Spera Constr. Co., 1625 N. Front St., Harrisburg, Pa., LB **$792,104,** general contract COURTHOUSE, Hanover and High Sts., CARLISLE, PA. Comrs. Cumberland Co., Carlisle, Pa. Lawrie & Green, 321 N. Front St., Harrisburg, archts. Bids Nov. 11. CD 11/5.

▲ **Consolidated Engineering Co.,** 20 E. Franklin St., Baltimore 2, Md., CA **$1,000,000,** OFFICE BLDG. and PENTHOUSE, Park Ave. and Preston St., BALTIMORE, MD. Baltimore Life Insurance Co., Charles and Saratoga Sts., Baltimore 1, Md.

Kirby & McGuire, Inc., 2518 Greenmount Ave., Baltimore 18, Md., CA **$517,000, brick,** concrete, steel, **block** Eastern District POLICE STATION, Security Section, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Nov. 4. CD 11/10, under LB.

Severn River Constr. Co., c/o Burbank Court Corp., owner, 2 W. University Parkway, Baltimore 18, Md., CA Approx. **$880,000,** 80 frame DWELLINGS, Parkside Heights Development, west of BALTIMORE, MD.

▲† **Joseph F. Nebel Co.,** 3408 Wisconsin Ave. N.W., Wash., D. C., CA **$1,505,000,** INDUSTRIAL FACILITIES for production of large cast grains, Navy Propellant Plant, NBy-21495, INDIAN HEAD, MD. Area Public Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C. Bids Nov. 18. CD 11/20, under LB.

▲† **Opha Mays,** 7403 Aspen Ave., Takoma Park, Md., CA **$1,247,521,** Carrolton JUNIOR HIGH SCHOOL, Lanham, MARLBORO, MD. Prince George's County Bd. Educ., Marlboro, Md. Bids Nov. 23. CD 11/25, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 8 North Carolina December 15 Florida
December 16 Virginia

STREETS AND ROADS

December 8 North Carolina December 15 Florida
December 16 Virginia

▲† **Florida**—BA About 12/30—U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, Levee 35B, Levee 38, Section 3 (E&W) required Islands along L-38, Sec. 2 and L-35B; S-38; S-13A modifications, culverts and spillway, Central and Southern Florida Flood Control Project, CIVENG-08-123-60-24. CD 9/29.

▲ **Virginia**—TUNNEL—BA 1/26—Elizabeth City Tunnel Comn., High St., Portsmouth (selected list of bidders) underwater portion of second Norfolk-Portsmouth tunnel, Contract No. 1, $10,919,000; buildings, access roads, etc. Norfolk-Portsmouth second tunnel, Contract No. 2, $6,751,000; Norfolk Plaza, second Norfolk-Portsmouth tunnel, Contract No. 3, $753,000; Portsmouth Approach, etc. second Norfolk-Portsmouth tunnel, Contract No. 4, $1,646,000; operating equipment borings, testing, etc. second Norfolk-Portsmouth tunnel, $4,023,000. Parsons, Brinckerhoff, Hall & Macdonald, 165 Broadway, New York 6, N. Y., engrs. CD 11/25.

HEAVY CONSTRUCTION—LB & CA

▲ **C. O. Osborn Constr. Co.,** 1626 29 Court N. Birmingham, Ala., LB **$630,682,** sanitary sewer imprvs. Camp Creek Contract B, Division 2, ATLANTA, GA. Comrs. Fulton Co., 165 Central Ave. S.W., Atlanta, Ga. Bids Nov. 18. CD 10/14;

P. D. Christian Co., 3130 Maple Dr. N.E., Atlanta, Ga., LB **$599,733,** sanitary sewer imprvs., Camp Creek, Contract B, Division 3 (Atlanta, Ga.);

Dixie Constr. Co., P.O. Box 201, Savannah, Ga., LB **$162,783,** sanitary sewer imprvs., Camp Creek, Contract B, Division 1 (Atlanta, Ga.).

▲† **James H. Craggs Constr. Co.,** P.O. Box 22, Gainesville, Fla., CA **$1,046,987,** grading, paving Arlington Expressway, JACKSONVILLE, FLA. Jacksonville Expressway Auth., 1022 Miami Rd., Jacksonville, Fla. Bids Nov. 5. CD 11/10, under LB.

J. E. Milam Constr. Co., 8940 1 Ave. S., Birmingham, Ala., CA **$699,327,** sanitary sewer lines, west Huntsville area, HUNTSVILLE, ALA. City, City Hall, Huntsville, Ala. Bids Nov. 10. CD 11/16, under LB.

▲ **Moss-Thornton Co., Inc.,** Leeds, Ala., **Cohron Constr. Co., Inc.,** 356 Cohron, Mobile, Ala., and **Southern Amiesite Asphalt Co., Inc.,** 3401 5 Ave. S., Birmingham, Ala., CA **$1,114,671,** pave Broad St. to Beauregard with accompanying drainage work, MOBILE, ALA. City, City Hall, Mobile, Ala. Bids Nov. 10, awarded Nov. 17. CD 11/17, under LB.

BUILDINGS—LB & CA

Reid, Inc., 711 N. Fayet St., Alexandria, Va., LB **$977,777** (11 bidders), Sidney Lanier INTERMEDIATE SCHOOL No. 5 near intersection U.S. Hy. 50 and Jermantown Rd., FAIRFAX, VA. Fairfax Co. Bd. Educ., Fairfax, Va. Bids Nov. 20. CD 11/12.

† **J. A. Jones,** 209 W. 4th, Charlotte, N. C., LB **$771,720** (18 bidders) AMMUNITION STOREHOUSE, Radford Arsenal, ENG-44-110-60-5, RADFORD, VA. U. S. Eng., foot of Front St., Norfolk 1, Va. Bids Nov. 19. CD 10/30.

King-Hunter, Inc., 1421 Westover Terrace, Greensboro, N. C., CA **$784,376,** general contract HOSPITAL, BURLINGTON, N. C. Memorial Hospital of Alamance Co., Alamance General Hospital, 1308 Rainey St., Burlington, N. C. Bids Nov. 5. CD 11/11, under LB.

▲ **South Carolina Electric & Gas Co.,** 1309 Hampton St., Columbia, S. C., Separate Contracts, Total **$50,000,000,** STEAM ELECTRIC GENERATING PLANT, CANADYS, S. C. Gilbert Assocs., Inc., 412 Washington St., Reading, Pa., engr.;

Kline Iron & Metal Works, 1226 Huger St., Columbia, S. C., CA fabrication and erection of steel for steam electric generating plant, (Canadys, S. C.);

Custodis, Inc., 157 Chambers St., New York, N. Y., CA chimneys for steam electric generating plant, (Canadys, S. C.);

Combustion Engineering Co., 200 Madison Ave., New York, N. Y., CA boilers for steam electric generating plant (Canadys, S. C.).

Fairlane Heights, Inc., 715 Rhodes-Haverty Bldg., Atlanta, Ga., Day Labor, **$600,000,** 63 RESIDENCES, Fairline Heights Subdivision, ATLANTA, GA. Morgan & Spitler, 3166 Maple Dr. N.E., Atlanta, Ga., archts.

Hi-Vue, Inc., 2560 Bankhead Highway N.W., Atlanta, Ga., Day Labor, **$750,000,** 76 RESIDENCES, Hurt Drive and vicinity, MARIETTA, GA.

Coite Somers Co., P.O. Box 111, Vidalia, Ga., LB **$634,690,** Pearl Stephens SCHOOL addn., Perry HIGH SCHOOL addn. Warner Robins JR. HIGH SCHOOL and Bonaire ELEMENTARY SCHOOL, PERRY, GA. Houston Co. Bd. Educ., Courthouse, Perry, Ga. Bids Nov. 19. CD 11/13.

Milestone Homes, 5431 SW 1 St., Plantation, Fla., Day Labor, **$800,000,** 100 RESIDENCES, FORT LAUDERDALE, FLA.

Milton J. Womack, Box 2454, Baton Rouge, La., CA **$702,500,** 2 story, steel frame, brick PLEASANT HALL addn., remodeling, BATON ROUGE, LA. Louisiana State University & Agricultural & Mechanical College, Baton Rouge, La. Bids Nov. 13, awarded Nov. 19. CD 11/17, under LB.

▲† **Fort Pitt Bridge Works,** Sherwyn Hotel, Pittsburgh, Pa., CA **$2,228,639,** structural steel for 500,000 kw unit Colbert STEAM PLANT, ALABAMA. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. CD 1/23.

▲ **Daniel Constr. Co., Inc. of Alabama,** 822 7 Ave. S., Birmingham, Ala., CA **$1,896,300** (8 bidders), 128-bed CHILDREN'S HOSPITAL and OUT-PATIENT CLINIC at University Medical Center site, BIRMINGHAM, ALA. Bd. Trustees Children's Hospital, 712 S. 30 St., Birmingham, Ala. Bids Nov. 12, awarded Nov. 19. CD 10/20.

▲ **Hercules Powder Co.,** Delaware Trust Bldg., Wilmington 99, Del., Own Forces, POLYPROPYLENE PLANT, LAKE CHARLES, LA.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 9 Michigan December 10 Wisconsin

STREETS AND ROADS

December 9 Michigan December 10 Wisconsin

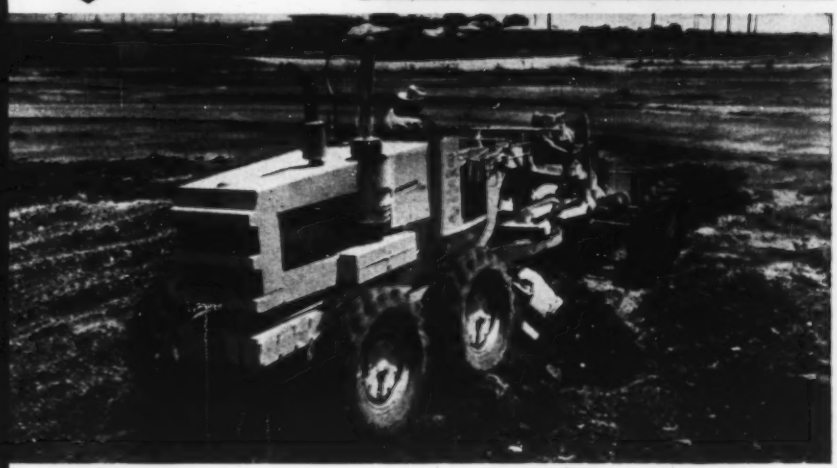
(Continued on page 96)

Why use a big torque-converter grader?
Because it handles
MORE WORK, FASTER

▲ Big — and accurate, too. This POWER-*Flow* 660 uses extra-slow speed to level rocky sub-base for aggregate near San Antonio, Texas. The owner, Killian-House Company, used it on a wide range of light and heavy assignments during construction of an interchange.

Optional pushplate, here mounted on Texas firm's Adams grader, is one of many profit-building attachments which extends the basic profit value of these units. With 190 hp, graders can push-load small and medium-size scrapers during peak production periods, cut tractor overhead. ▶

"Soft" job of fine-finishing side slopes is handled with ease by the precision-blading of Killian-House Co's POWER-*Flow*. "We like this grader fine and dandy," said foreman Ted Lookingbill. "It works fast and with plenty of power. And it maneuvers easy." ▼



If you think you don't have enough "heavy" work in sight to keep a high-power, heavyweight grader with torque converter busy, remember this: Big graders are profitable on *any* size job . . . because they get more work done *faster*.

Take the LeTourneau-Westinghouse Adams* POWER-*Flow*® 660. This grader has so much power . . . 190 hp . . . that it moves a *bigger* blade-load at *faster* speed. This means fewer passes to complete a job. And its working weight of almost 14 tons aids in accurate grading on any job.

Also important on jobs of any size are a number of advantages resulting from the "660's" torque-converter transmission. With the POWER-*Flow*, speed and power are *automatically balanced* for work efficiency when there's a load on the blade. This means you work at the highest practical speed on any job. Operator does better work because he doesn't have to work out gear combinations himself, doesn't have to keep shifting, stays fresh and alert longer. The torque-converter "660" has higher speeds, too. It travels at up to 27.4 mph . . . reverse to as high as 24.4 mph for time-saving back-up between pushes.

Want to check this big "all-work" unit yourself? See your LW Distributor at your convenience.

*Trademark G-2001-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

(Continued from page 94)

BUILDINGS—BA

▲ **Ill., Norridge**—HIGH SCHOOL—BA 12/15—Norwood Park Twp. High School Dist. 234, 4600 N. Oriole Ave., high school. $2,000,000. Orput & Orput & Assocs., Empire Bldg., Rockford, archts. CD 6/26.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., State Depts. Bldg., Columbus,
O.—**C. F. Replogle Co.**, P. O. Box 308, Circleville, O., CA **$3,620,828**, Type T-35 on B-20 and structures 2.146 mi. SR 7, Section 13.53, U-430(14) Proj. 517, Jefferson Co. Bids Nov. 10. CD 11/18, under LB;
O.—**John F. Casey Co.**, P. O. Box 1888, Pittsburgh, Pa., CA **$1,490,138**, Type T-71 and structures 0.561 mi. SR 640, Section 2.56, U-UG-1090(1) City of Willoughby Proj. 518, Lake Co.

▲ **Dravo Corp.**, Neville Island, Pittsburgh, Pa., CA **$22,868,706**, locks, Pike Island Locks and Dam, Ohio River, CIVENG-36-058-60-11, OHIO and WEST VIRGINIA. U. S. Eng., 925 New Federal Bldg., Pittsburgh, Pa. Bids Nov. 19. CD 11/24, under LB.

▲ **Tousley Constr. Co., Inc.**, 925 E. St. Clair St., Indianapolis, Ind., CA **$1,472,281**, treatment plant and interceptor sewer addns., alterations, Contr. 59-S-31-MH, INDIANAPOLIS, IND. City, Dpt. P. Wks. & Supply, Indianapolis, Ind. Bids Oct. 6. CD 10/19, under LB.

ILLINOIS—Dpt. P. Wks. & Bldg.; Div. Hys., Centennial Bldgs., Springfield,
C. R. Meyer & Sons Co., 208 State St., Oshkosh, Wis., CA **$661,312**, two parallel 11-span steel plant girder and WF beam bridges over Sangamon River, approx. 3 mi. northeast of Springfield, with exception of furnishing, fabricating structural steel, FAI Rt. 55, Sangamon Co. Bids Oct. 23. CD 10/27, under LB.

BUILDINGS—LB & CA

D & L Constr. Co., 2167 Fenwick Rd., Cleveland 18, O., Own Forces, **$570,000**, 30 RANCH HOMES, Grant Blvd., off Webster Rd., MIDDLEBURG HEIGHTS, O.

W. W. Spurling Constr. Co., Inc., 5007 New Haven Ave., Fort Wayne, Ind., CA **$815,377** (7 bidders), general contract Portage JUNIOR HIGH SCHOOL, Cardmore Ave. at Taylor St., FORT WAYNE, IND. Community Schools Bd., 1230 S. Clinton St., Fort Wayne, Ind. Bids Nov. 19. CD 10/30.

School City of Gary, 10th Place and Virginia Ave., Gary, Ind., rejected bids Nov. 10, 26-room Tolleston SCHOOL, 19th Place and Taney Ave., GARY, IND. LB **$561,800**. CD 11/18, under LB.

▲ **J. Emil Anderson**, 1809 Balmoral Ave., Chicago, Ill., CA **$1,500,000**, 1 story, 60,000 sq. ft. brick COLLEGE AUDITORIUM and CHAPEL, E. Seminary Ave., WHEATON, ILL. Wheaton College, 501 E. Willow Ave., Wheaton, Ill. Daniel Dorr, 501 E. Willow Ave., Wheaton, Ill., archt. Awarded Nov. 20. CD 8/8/56.

Jos. P. Jansen, 5376 N. Teutonia Ave., Milwaukee, Wis., CA Est. **$900,000**, 104-unit MOTEL, MENASHA, WIS. Appeton Holiday Inn, Menasha, Wis. Rashe-Schroeder & Spransy, 601 W. Capitol Dr., Milwaukee, Wis., archts.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 11 Minnesota — December 16 Texas

STREETS AND ROADS

December 11 Minnesota — December 15, 16 Texas

▲† **N. D., Grand Forks**—STORAGE BASE—BA On Or About 12/18—U. S. Eng., 1709 Jackson St., Omaha, Neb. storage base, M/Cub (SAC), ENG-25-066-60-66, $1,000,000-$1,500,000. CD 10/30.

▲† **Texas**—BA About 12/22—U. S. Eng., Box 1229, Galveston, embankment fill wood piling, sheet pile caps, etc., Galveston Harbor and Channel, Seal Wall Exten. Station 94 to 129 plus 00 Galveston, Galveston Co., ENG-41-243-60-29. $2,500,000. CD 9/29.

BUILDINGS—BA

Iowa, Council Bluffs—SCHOOL—BA 12/8—Lewis Twp. High School Bd. Educ., twp. high school, $600,000. I. T. Carrithers, 6 N. 1 St., archt. CD 12/29.

Minn., Columbia Heights—SCHOOL—BA 12/15—Bd. Educ. Independent School Dist. No. 13, elementary school. $800,000. Toltz, King, Duvall, Anderson & Assocs., 1408 Pioneer Bldg., St. Paul, archts.-engrs. CD 12/17/58.

▲† **Iowa, Des Moines**—HOSPITAL—BA 2/2—Veterans Admin., Munitions Bldg., Wash., D. C., Phase I, hospital modernization, $2,796,000. CD 12/15

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., Capitol Approach, St. Paul,
S. J. Groves & Sons Co., Wesley Temple Bldg., Minneapolis, Minn., CA **$967,976**, grade, base, road-mixed, bit. base and bridges 1.4 mi. near Eveleth, St. Louis Co. Bids Nov. 13. CD 11/19, under LB.

TEXAS—State Hy. Comn., Austin,
J. A. Raines, Contractor, Box 936, Muskogee, Okla. CA **$872,938**, Neches River Bridge and approaches, 2.599 mi. Hy. U.S. 96. Proj. F 354 (8); Jasper and Hardin Counties. Bids Nov. 13. CD 11/17, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—**J. M. Dellinger, Inc.**, Box 4227, Corpus Christi, Tex., CA **$533,256**, flex. base, b. conc. 11.463 mi. Hy. U.S. 83, Proj. F 793 (2), Dimmit Co.;
Tex.—**Gilvin-Terrill, Inc.**, Box 9027, Amarillo, Tex. CA **$598,960**, flex. base, hot mix b. conc. 2.004 mi. Hy. U.S. 60 and 87, Proj. U 60 (18), Randall Co.;
Tex.—**Thos. J. Evans, Jr. & M. M. Pettyjohn**, P.O. Box 478, South Houston, Tex., CA **$761,494**, grade, structures 1.895 mi. Hy. U.S. 59, Proj. F 514 (32), Harris Co. Grand total $1,893,710. Bids Nov. 12. CD 11/17, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—**Gilvin-Terrell, Inc.**, 413 E. 3rd St., Amarillo, Tex., CA **$529,765**, base, b. conc. 5.999 mi. Hy. U.S. 60, Proj. R RD 17 (1), Potter Co.;
Tex.—**Flenniken Constr. Co., Inc.**, 2530 Fairmont St., Dallas, Tex., CA **$817,798**, flex. base, b. conc. 3.955 mi. Hy. U.S. 287, Proj. F 451 (7), Wilbarger Co.;
Tex.—**Jno. F. Buckner & Sons & Uvalde Constr. Co.**, Cleburne, Tex., CA **$763,241**, base, c. conc. 4.731 mi. Hy. U.S. 175. Proj. F 860 (12), Dallas Co. Grand total $2,110,804. CD 11/17, under LB.

▲ **Wharf Constructors**, 1915 Kolfahl St., Houston, Tex., CA **$2,058,500**, Wharves 21 and 22, HOUSTON, TEX. Harris County Houston Ship Channel Navigation Dist., 1519 Capitol Ave., Houston, Tex. Rob. J. Cummins, 1028 Bankers Mtg. Bldg., Houston, Tex., engr. CD 8/28/58.

MONTANA—State Hy. Comn., Helena,
W. R. Cahoon Constr. Co., Pocatello, Idaho, CA **$642,857**, 730.42 ft. steel, concrete bridge over Yellowstone River, Livingston East and West Rd., FAI Proj., Park Co. Bids Nov. 18. CD 11/24, under LB.

BUILDINGS—LB & CA

N. Johnson Constr. Co., Inc., 677 Main St., Winona, Minn., CA **$638,950**, general contract Valders MEMORIAL HALL OF SCIENCE, DECORAH, IOWA. Luther College, Decorah, Iowa. Bids Nov. 10. CD 11/16, under LB.

A. B. Newton & Co., P. O. Box 191, Vidalia, Ga., CA **$954,634**, 106 brick veneer, concrete DWELLING UNITS Proj. Mo-8-1, SIKESTON, MO. City Housing Auth., Sikeston, Mo. Bids Nov. 19, awarded Nov. 23. CD 10/27.

▲ **Tennecyck-Shaw, Inc.**, Box 6137, Dallas, Tex. CA **$1,650,000**, 300 room MOTOR RESORT HOTEL, DALLAS, TEX. Marriott Hotels of Dallas, Inc., c/o Harold A. Berry, archt., 422 S. Field St., Dallas, Tex. Bids Oct. 15. CD 10/16.
George Linskie, 2608-A Inwood Rd., Dallas, Tex., CA **$596,865** mechanical work for motor resort hotel (Dallas, Tex.).

Christie, Mitchell & Mitchell Co., Houston Club Bldg., Houston, Tex., Owner Builds, **$650,000**, gas processing PLANT enlargement, DECATUR, TEX. CD 3/3.

E. E. Farrow, Box 13186, Dallas, Tex., CA **$875,000**, foundation and structural steel for POWER PLANT, PEARSALL, TEX. Medina Electric Cooperative, Hondo, Tex. CD 1/28.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

December 11 Arizona — January 6 California

BUILDINGS—BA

▲ **Calif., Los Angeles**—HOSPITAL—BA 12/15—Hunter & Benedict, Foxon, Gruys & Sayler, archts., 8440 Melrose Ave., Los Angeles, hospital addn. for Hollywood Presbyterian Hospital, 1322 North Vermont Ave., Los Angeles, Calif. $1,400,000. CD 11/5.

▲ **Calif., Long Beach**—SCIENCE BLDG., etc.—BA 1/6—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, 3 story, 1,600 sq. ft. subbsmnt., 102,400 sq. ft. concrete frame science bldg., 3rd unit, incl. penthouses, 1 story lecture hall, prefabricated steel greenhouse, wood frame animal house, W.O. 61460GC-30. $2,650,000. Plans deposit $75. CD 6/18.

HEAVY CONSTRUCTION—LB & CA

▲† **English Electric Export & Trading Ltd.**, 750 3 Ave., New York, N. Y., LB **$6,214,552**, f.o.b. Flagstaff, 8 hydraulic turbines for Glen Canyon Power Plant, Colorado River Storage Project, Flagstaff, DS 5234, ARIZONA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Nov. 24. CD 11/5.

▲ **WASHINGTON**—State Hy. Comm., Olympia, Bids opened 11/24,
Morrison Knudsen Co., Inc., 319 Broadway, Boise, Idaho, and **Rumsey & Co.**, 3821 Airport Way, Seattle 4, Wash., LB **$3,982,242** (6 bidders), bridges on Seattle Freeway, Galer St. to Lakeview Blvd., FAP No. I-5-3(71)167, King Co. CD 11/18.

▲† **MacDonald, Scott & Assocs.**, (MacDonald Constr. Co., St. Louis, Mo.; Scott Co., Oakland, Calif.; C. H. Leavell & Co., El Paso, Tex.; Morrison-Knudsen Co., Inc., Los Angeles, Calif.; Paul Hardeman, Inc., Stanton, Calif., F. E. Young Constr. Co., San Diego, Calif.), 1310 South Grand Ave., St. Louis 4, Mo., CA **$31,600,722**, est. $32,521,415 3 each missile silos, equipment terminals and propellant terminals; 1 each control center, antenna silo pairs, terminals, powerhouse, etc., for technical facilities, Larson Air Force Base, ENG-45-164-60-2, WS107A-2, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Nov. 18, awarded Nov. 20. CD 11/20, under LB.

▲ **Todd Shipyards Corp.**, 710 N. Front, San Pedro, Calif., CA **$3,000,000**, offshore drilling platform near Summerland, CALIFORNIA. Standard Oil Co. of California, 225 Bush St., San Francisco, Calif.;
National Steel & Shipbuilding Co., Harbor Dr. and 28th St., San Diego, Calif., CA **$500,000**, fabricating deck structure near Summerland (California).

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Ukropina, Polich & Kral and Ukropina, P. O. Box 105, San Gabriel, Calif., CA **$3,478,202**, grading, paving 2 mi. lane freeway, Golden State Freeway (US 6-99) between 0.2 mi. southeast of Roscoe Blvd. and 0.2 mi. northwest of Lankershim Blvd. VII-L.A-4-L.A., Los Angeles Co. Bids Nov. 13. CD 11/18, under LB.

▲ **Gibbons & Reed Co. and J. A. Jones Constr. Co.**, 825 West 9th North St., Salt Lake, Utah, CA **$1,800,000**, Camino Diversion Dam, unit of Upper American River Project, El Dorado Co., Spec. 2213, SACRAMENTO, CALIF. Sacramento Municipal Utility Dist., 1708 59th St., Sacramento, Calif. Awarded Nov. 20. CD 11/23, under LB.

Hawaiian Dredging & Constr. Co., Ala Moana at Pikoi, Honolulu, Hawaii, CA **$743,000**, 2nd increment, jet terminal, Honolulu Airport, HONOLULU, HAWAII. State Hawaii, corner of Punchbowl and Queen Sts., Honolulu, Hawaii. Awarded Nov. 20. CD 11/2, under LB.

▲ **S. Patti Constr. Co.**, 1340 Admiral Blvd., Kansas City 6, Mo., **MacDonald Constr. Co.**, 1310 S. Grand Ave., St. Louis 4, Mo., and **Morrison-Knudsen Co.**, 603 Hoge Bldg., Seattle 4, Wash., LB **$752,611** (9 bidders), Part 1, one 15 m.g. concrete reservoir; LB **$1,130,044**, Part 2, two 15 m.g. concrete reservoirs, WAILUKU, HAWAII. City of Wailuku and Maui County, City Hall, Wailuku, Hawaii. Bids Oct. 16. CD 9/24.

BUILDINGS—LB & CA

† **Arrington Constr. Co., Inc.**, Idaho Falls, Idaho, CA **$721,275**, BOILING WATER REACTOR NO. 5 (BORAX V) FACILITY at National Reactor Testing Station, Inv. C-810-59, ARCO, IDAHO. Atomic Energy Comm., Idaho Operations Office, Idaho Falls, Idaho. Awarded Nov. 20. CD 10/27, under LB.

▲† **Lembke Constr. Co., Inc.**, 1719 5 St. N.W., Albuquerque, N. M., CA **$3,079,459**, SCHOOL FACILITIES at Chinle School on Navajo Reservation, CHINLE, ARIZ. Bureau Indian Affairs, Branch of Plant Design & Constr., Box 1727, Albuquerque, N. M. Bids Nov. 12. CD 11/19, under LB.

▲† **Arrow Constr. Co.**, Yuma, Ariz., CA **$1,032,480**, Drone ASSEMBLY BLDG., FORT HUACHUCA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 9/5/58.

Maricopa Co., Phoenix, Ariz., rejected bids Oct. 13, HEALTH DPT. BLDG., 18 St., Roosevelt, 19 St. and Carfield, PHOENIX, ARIZ. LB **$963,660**. CD 10/20, under LB.

Burch Constr. Co., 5126 Vineland Ave., North Hollywood, Calif., CA **$561,000**, HIGH SCHOOL addn., CHINO, CALIF. Chino Bd. Educ., Chino, Calif. Bids Oct. 14. CD 10/21, under LB.

▲ **Dike & Colegrove**, 419 E. 17th St., Costa Mesa, Calif., CA **$1,056,000**, 66 stucco DWELLINGS, 1578 Ponderosa St., COSTA MESA, CALIF. Knightwell Land Co., 419 E. 17th St., Costa Mesa, Calif.

▲ **C. V. Holder**, 18011 South La Salle Ave., Gardena, Calif., LB **$1,208,450**, (15 bidders), INSTRUCTIONAL AIDS and SERVICE CENTER FACILITIES at Board Offices, 1061 Temple St., LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Nov. 20. CD 9/27/56.

▲ **Grandview Bldg. Co.**, 470 S. Beverly Dr., Beverly Hills, Calif., CA **$1,328,400**, 74 stucco DWELLINGS, Grayslake Rd. and Menominee Pl., PALOS VERDES ESTATES, CALIF. Birchmont Land Co., 470 S. Beverly Dr., Beverly Hills, Calif.

O. E. Anderson Co., 1075 N. 10th St., San Jose, Calif., CA **$890,901**, Ida Price ELEMENTARY SCHOOL, SAN JOSE, CALIF. Cambrian Elementary School Dist., 1962 Foxworthy Ave., San Jose, Calif. Bids Oct. 6. CD 10/13, under LB.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **McNamara Constr. of Newfoundland Ltd.** Alexander St., St. John's, Newfoundland, LB **$3,482,000**, (9 bidders), harbor imprvs., ST. JOHN'S, NEWFOUNDLAND. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Nov. 18. CD 10/7.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
O. & H. Constr. Ltd. and Omichinski Ltd., 7-8 Lowery Bldg., Port Arthur, Ont., CA **$585,037**, (9 bidders), grading, culverts, granular base 8.32 mi. Hy. 11 from Hearst easterly (Contract 59-303), Hearst. Bids Nov. 18, awarded Nov. 20. CD 11/24.

Spino Constr. Ltd., 200 Sauve Ave. W., Montreal, Que., LB **$861,359**, 5th section St. Pierre Collector Sewer between Irwin St. and Brock Ave. to Rockfield hydro station, MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Nov. 18. CD 10/23.

BUILDINGS—LB & CA

Bradford-Hoshal Assocs., Ltd., Eastern Division, 108 Cavan St., Port Hope, Ont., CA Est. **$750,000**, (11 bidders), 1 and 2 story COLLEGIATE, King St. E., COBOURG, ONT. Cobourg Dist. Collegiate Institute Bd., Cobourg, Ont. Bids Nov. 10, awarded Nov. 20. CD 10/28.

Duroc Constr., Inc., 210 Cremazie Blvd. W., Montreal, Que., CA **$929,490**, 2 story, rein.-con., brick Ecole Stella Maris SCHOOL and GYMNASIUM, MONTREAL, QUE. Montreal Catholic School Comm., 3737 Sherbrooke St. E., Montreal, Que. Bids Nov. 17, awarded Nov. 19. CD 11/4.

(Proposal Advertisements see pp. 110 to 112)

Digging a 60′-deep cut, 2½-yd shovel fills Cosmo's Tournapull Rear-Dump with heaped load of rock. Note how this LW hauler's wide bowl offers shovel operator a big "target"... for easy loading without spillage. The 'Pull's* electric power-steer permits 90° turns for fast spotting under dipper, eliminates time-consuming back-and-forth maneuvering.

Relocating Railroad for Keystone Dam

Contractor needed fast, tough haulers... selected LW Rear-Dumps

Preliminary work for the huge Keystone Dam and Reservoir project on the Arkansas River included relocating 2.5 miles of the St. Louis and San Francisco Railroad. Cosmo Construction Co., Oklahoma City, handled the job, which involved moving more than 650,000 cu yd of earth, a good percentage of which was coarse rock. To handle this heavy hauling, Cosmo selected 3 rugged LeTourneau-Westinghouse C Tournapulls® with 22-ton Rear-Dumps.

Photographs and captions describe how these units performed, hauling rock from a 60′-deep cut to a bridge approach requiring 65′ of fill.

If you have rock to haul, see how these high-speed, highly-maneuverable LW Rear-Dumps can increase output and lower costs on *your* jobs. There are 3 sizes: 10, 22, and 35 tons; 143 to 360 hp. Rear-Dump bodies are interchangeable with fast-loading LW scrapers, to broaden the work-range of your Tournapull prime-movers. Ask for full details.

Clouds of dust boil up as Tournapull Rear-Dump highballs down grade to fill area. Operator uses unit's high speeds with complete confidence because he has at his command the *largest brakes of any similar-sized hauler!* Rear-Dump's multi-disc air brakes have 3,762 sq in. of braking surface.

LW Rear-Dump operator moves an electric switch on convenient control panel... and body raises quickly to desired angle. Material unloads *fast*. 'Pull's front-wheel drive keeps power and traction on solid footing when dumping close to high banks.

*Trademark CR-2161-DCJ-1

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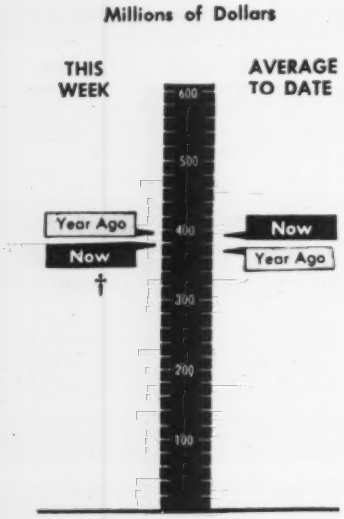
Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

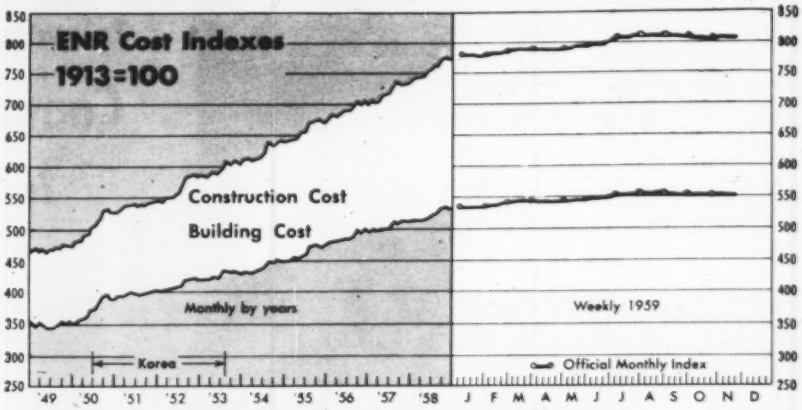
	†This Week	Cum. 49 wks 1959	Chge '58-'59
	millions		%
All Heavy Constr	$383.4	$19,198.4	+ 5
By Ownership			
PRIVATE	233.4	9,752.1	+33
PUBLIC	150.0	9,446.3	−13
State & Municipal	79.4	6,857.6	−16
Federal	70.6	2,588.7	− 4
By Type of Work			
PUBLIC			
Waterworks	3.8	360.4	+24
Sewerage	9.1	615.7	+ 6
Bridges*	8.9	664.3	− 2
Highways	34.3	2,734.6	−23
Earthworks, Dams & Waterways	28.7	852.0	−14
Buildings:			
Excl. Housing	25.5	2,416.6	− 2
Housing	1.6	558.0	−46
Unclassified	38.4	1,255.9	− 4
PRIVATE			
Buildings:			
Mass Housing	110.9	4,412.6	+26
Commercial	22.9	2,007.9	+15
Industrial	91.1	2,852.7	+71
Unclassified	8.2	467.7	+18

* Includes private bridges. † 4-day week.

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Nov. 26	Cum. 48 wks 1959	Chge '58-'59
	millions		%
Corporate Securities	$215.7	$ 3,920.3	−18
State and Municipal:			
All Except Housing	146.0	5,467.3	− 6
Housing	...	107.5	− 9
Federal Loans	3.9	134.0	−29
Federal Aid	...	3,343.4	+29
Total Nonfederal	$365.6	$12,972.6	− 4
Federal Appropriations:			
Projects in U.S.	...	$3,564.1	−16
Outside U. S.	...	22.4	−51
Total New Capital	$365.6	$16,559.1	− 7



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Nov. 26 1959	% Change from Oct. 29 1959	Nov. 27 1958
Construction Cost	808.96	+0.02	+4.54
Building Cost	553.16	−0.19	+3.43

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.270; Building Cost by 3.518.

STATE AND MUNICIPAL BOND SALES

	1959 Nov.	1959 11-Months	Percent Change from 1958 Nov.	Percent Change from 1958 11-Mos.
	(millions)			
All Construction	$444.2	$5,574.8	+ 1.4	− 5.8
Buildings	207.3	2,293.6	+ 17.5	− 7.5
Schools	164.9	1,519.7	+ 33.8	−12.1
Housing		107.5	−100.0	− 7.1
Other buildings	42.4	666.4	− 15.6	+ 5.0
Heavy Construction	236.9	3,281.2	− 9.4	− 4.5
Waterworks	40.2	514.9	− 46.5	+ 9.9
Sewerage	27.5	393.5	− 37.3	−13.7
Bridges	2.4	103.9	− 74.7	+65.9
Highways	24.2	537.2	+298.7	−42.9
Earthwork, dams, waterways	23.1	777.7	+1,507.6	+85.5
Electric and gas utilities	26.8	139.6	+538.6	−37.3
Airports	7.6	193.7	− 69.8	+92.2
Parking facilities	3.4	31.6	+408.9	+35.4
Other unclassified	81.7	589.1	+ 9.3	−20.5

BOND ELECTION RESULTS—10 Months 1959

Investment Bankers Association	Approved	Disapproved	Percent Approved
	(thousands)		
All Construction	$1,506,046	$369,485	80.3
Buildings	893,753	266,907	77.0
Schools	834,383	242,620	77.5
Housing	500	1,000	33.3
Administrative and office	12,559	6,703	65.2
Industrial	13,322	5,000	72.7
Other	32,989	11,584	74.0
Heavy Construction	612,293	102,578	85.7
Water and sewer	278,274	38,103	88.0
Roads and bridges	85,394	10,771	88.8
Other Utilities	80,320	3,935	95.3
Unclassified	168,305	49,769	77.2

CONTRACTOR FAILURES

Dun & Bradstreet	1959 Oct.	1959 10-Mos.	Percent Change from 1958 Oct.	Percent Change from 1958 10-Mos.
Number — By Type				
All Contractors	164	1,715	− 6.8	− 5.2
General Building	66	606	− 9.6	−26.7
Other Contractors	11	133	0	+31.7
Building Subcontractors	87	976	− 5.4	− 0.6
Number — By Region				
New England	7	111	0	− 6.7
Middle Atlantic	42	383	+ 5.0	−15.3
South	22	242	−29.0	−13.9
Middle West	45	392	+28.6	+ 8.6
Miss R. to Rockies	13	182	−27.8	− 4.2
Far West	35	405	−22.2	− 0.5
Liabilities (thousands)				
All Contractors	$7,131	$99,293	+ 5.3	+ 3.9
General Building	4,583	55,713	+32.5	+10.0
Other Contractors	301	9,061	− 6.8	−15.0
Building Subcontractors	2,247	34,519	−24.8	+ 0.7

Rising on Raymond caissons, a new post office for Detroit

Built in an area with extremely challenging subsoil conditions, Detroit's new Post Office is assured a permanent position on the city's skyline. The reason: a foundation of 333 Raymond caissons; average length, 104 feet; diameters of 36 to 68 inches; bell diameters up to 13 feet 6 inches.

For solutions to foundation problems on your projects, Raymond stands ready with the experience, equipment and materials to undertake the installations from start to finish. For further information call or write your nearest Raymond office.

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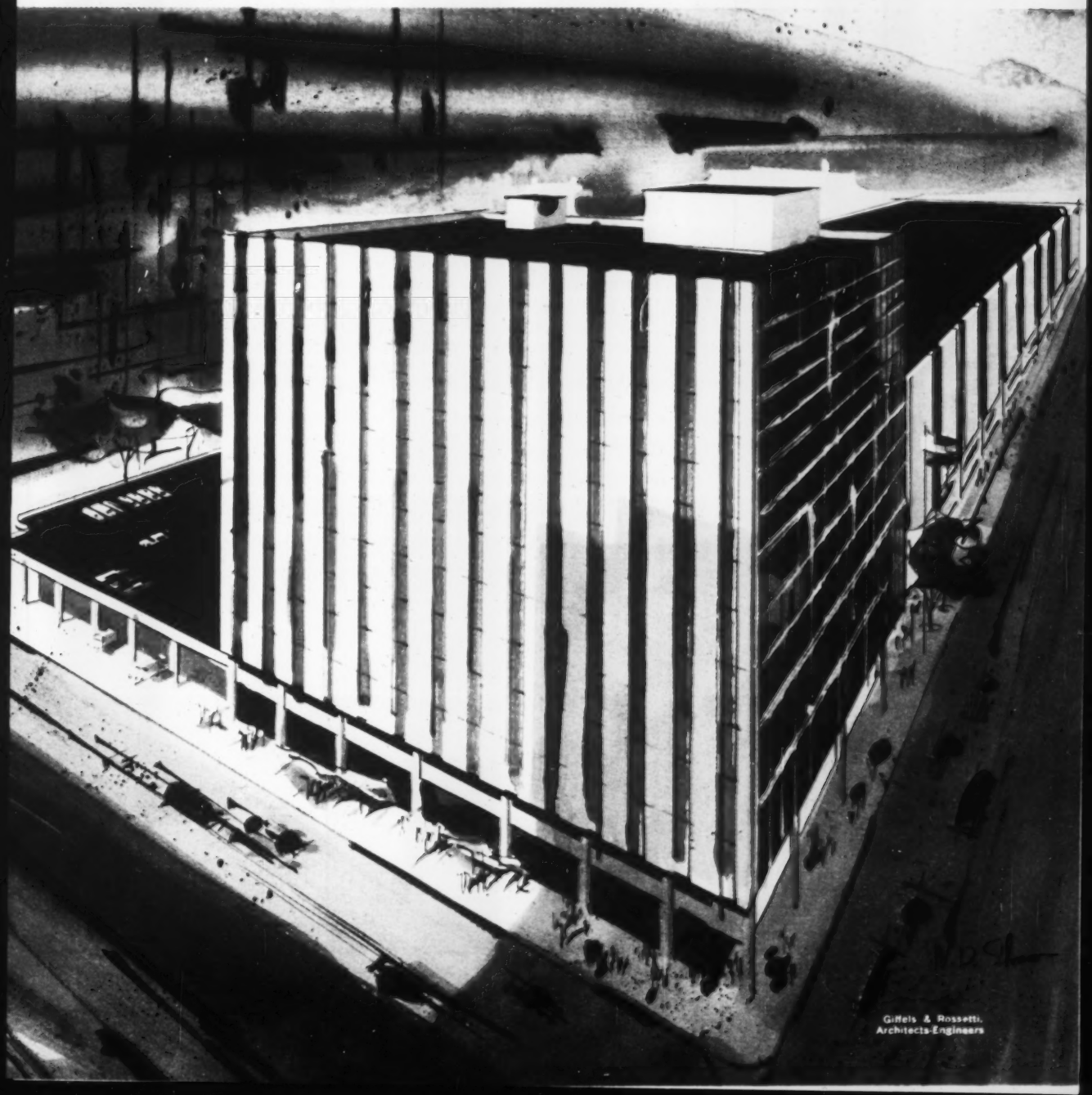


From summer classes at Voorhees Walker Smith Smith & Haines, trainees go . . .

Campus on the Job: Experience

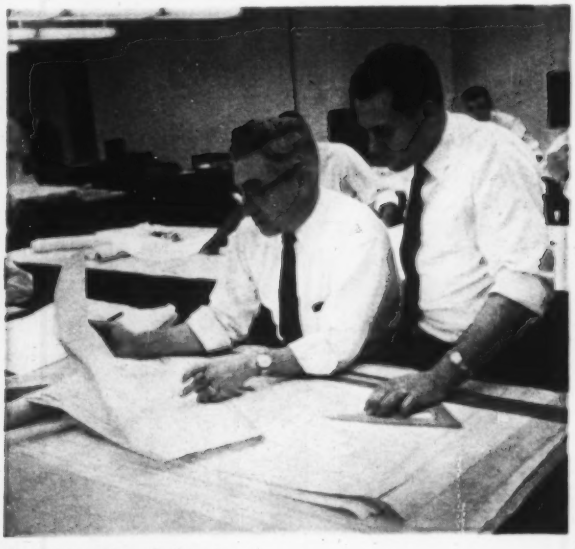
"Our annual summer training program for architectural and engineering students is shaped solely for their benefit. But if we obtain one or two talented people from each course, the partners are more than happy. We may even see them develop into partners of the future."

Speaking is Charles Haines, a partner in the New York City architectural firm of Voorhees Walker Smith Smith & Haines. He's referring to the firm's formal program that gives students some views of construction rarely provided in college classrooms. Some examples:

- What it's like to work against a deadline when money's involved.
- What it's like to work in a big, metropolitan-based firm.
- What it takes to bring thousands of details together to form a multi-million-dollar building complex.

It adds up to a College of Hard Knocks with some of the more bruising thumps removed.

The formal program was initiated in the summer of 1955 with a class of 21. It is superimposed on the firm's much older practice of hiring engi-



EX-STUDENTS: R. N. Bonsignore, assistant project manager . . . R. J. Mazzotta, draftsman . . .

. . . To drawing board to watch and do work

. . . That leads to construction in the field.

for All, Jobs for a Few

neering and architectural students as fill-ins during summer months.

There is a basic difference: Those hired as summer employees enter as productive workers. The trainees are not expected to be productive, because their circulation throughout the firm during their 10-week stay does not allow them to become fully familiar with, or concentrate on, any single operation.

. . . Mrs. Karyl Arnold, draftsman.

The firm believes the formal program gives a more comprehensive picture or measure of a trainee's potential than the summer replacement program.

Trainees are paid "a living wage." The most recent class members were each paid $65 a week. It's expected that next summer's group will receive the same pay. And the search for that class was just completed. Annual budget for the program is about $15,000.

To obtain the trainees, the firm sent applications and illustrated booklets explaining the program to the deans of 34 architectural and engineering colleges west of the Mississippi.

The completed applications must be endorsed by the deans, and only students with the highest scholastic standing are considered. The applicant must also be willing to work in New York City after finishing school.

There is one other restriction. The student designated must be scheduled to start his final year of college in the fall immediately following the summer he or she would be a trainee.

"By accepting only those students, we are fairly certain they intend to stay in construction. The first or second year student may still fall by the wayside after he finds out that construction has no armlock on him just because he likes to watch a building going up," Mr. Haines explains.

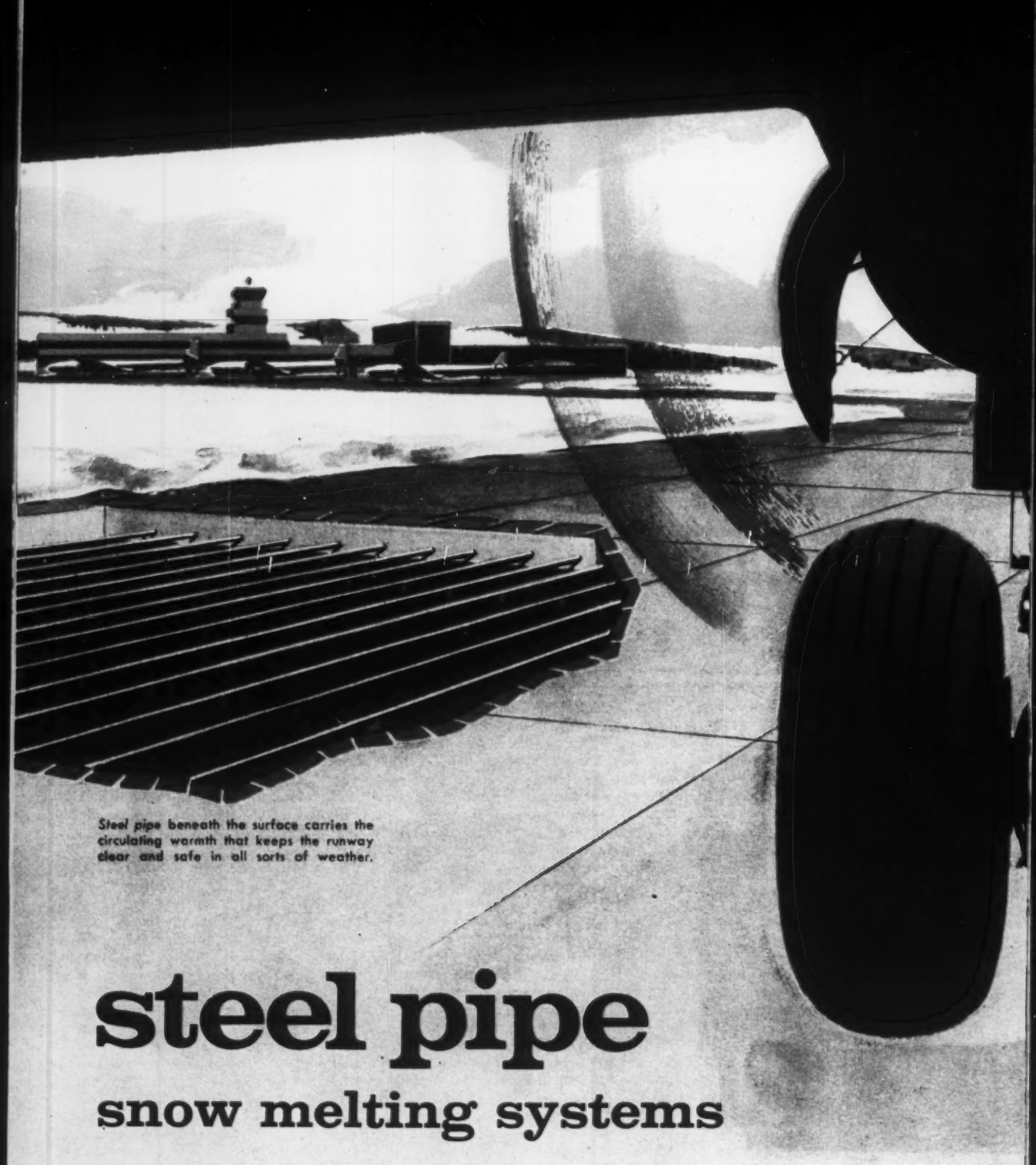
Only one trainee is accepted from any one school and the number is kept to a maximum of 20 if possible. A larger group would be too unwieldy.

"We take only one student from a school to avoid the development of a clique. Once we had six from one college and they might just as well have been back on campus. They tended to be more interested in each other and their school than the new people and experiences around them," Mr. Haines says.

Members of the firm don't meet the students until the day they arrive, generally during the second week of June. There are no personal interviews during selection of candidates. Scholastic standing and dean's recommendations are the only methods of choosing a trainee candidate. The firm believes this gives them the cream of the crop.

The trainees are assigned to the various operating sections of the firm: site planning, preliminary design, interior design, print shop, information center, model shop and any one of the production groups. The last are the sections that produce the contract drawings and specifications for the buildings that ultimately take shape in steel and concrete.

Students' stays in the various operations may range from a few days to three weeks. However, if a student ex-



Steel pipe beneath the surface carries the circulating warmth that keeps the runway clear and safe in all sorts of weather.

steel pipe

snow melting systems

keep runways clear

Planes don't fly when they can't get off the ground—or back down again. But when the runways are clear of ice and snow, thanks to *steel pipe* snow melting systems, they will fly on schedule.

Beneath the surface of the runways, a lattice of *steel pipe* carries a solution of warm liquid, radiating sufficient heat to melt the snow as quickly as it falls. The big planes come in, out of a stormy cloud, onto a clear, clean landing strip, without circling in stacked formation while tractor snow-plows try to fight back the drifts.

Hundreds of airport runways will be weather-proofed with *steel pipe* snow removal systems during the next few years. It's another example of the many kinds of jobs that *steel pipe* can do *best.*

STEEL PIPE IS FIRST CHOICE

- Low cost with durability
- Strength unexcelled for safety
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- Weldable—easily, strongly
- Threads smoothly, cleanly
- Sound joints, welded or coupled
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presses great interest and indicates above-average ability in a specific field, he may be allowed to spend more time in that operation.

The program is also modified to fit the profession the student is planning to enter. The civil, mechanical and electrical engineers, for example, may not be assigned to the interior design and decoration section.

One day a week the trainees attend seminars and meetings conducted by partners, consulting partners, associates and the heads of various divisions.

Classroom subjects include bases of design, fundamental design stage, site planning, working drawings and details, contracts with clients, the construction contract, field supervision, relations with civil authorities, design during working drawings, and the art of communication, both with the client and the public.

The final session is a two- to four-day field trip to one of the firm's projects.

On completion of the training program, the heads of the departments rate the trainees on 11 basic qualities: technical ability, quantity of work, quality of work, judgment, initiative, dependability, job attitude, job knowledge, adaptibility, creativity, and over-all performance.

Allowance is made, however, for the short time allotted to the students in the various sections. Basically, the program provides the firm with a comprehensive measure of a trainee's potential in one or more fields.

Because the firm has its own engineering staff, trainees from mechanical, civil and electrical engineering schools are included. The number of architectural students, however, is larger than those training for engineering.

Since the first class started in 1955, there have been 63 students of architecture, 9 of civil engineering, 12 of electrical engineering and 13 of mechanical engineering.

Four former trainees are now on the Voorhees Walker Smith Smith & Haines payroll. They are Richard N. Bonsignore, Pratt Institute; Rocco J. Mazzotta, Pratt Institute; Mrs. Karyl Arnold, University of Pennsylvania; and Austin L. Spriggs, Howard University. All were architectural students at college.

Mr. Bonsignore was a trainee in 1955 and started working for the firm in June 1957. He is now an assistant project manager.

Mr. Mazzotta, Mrs. Arnold and Mr. Spriggs, designers and draftsmen, started work this year. They were trainees in the years of 1956, 1957 and 1958.

Tax Bite on Bond Interest Urged

Tax exemption on interest income from state and local government bonds —a multibillion-dollar prop under public works—has become a major issue in the House Ways and Means Committee investigation of the revenue system (ENR Nov. 19, p. 186).

The issue has harassed tax writers ever since the income tax law was passed. Committee members, digging into the problem again last week, discovered that although the experts are as much at odds as ever, they indicate the time has come for a fresh look.

Interest payments on about $48 billion worth of state and local bonds now go tax free under rules first laid down by Congress in 1913. The idea then was that a tax of that kind of income would be an unconstitutional encroachment on the power of state and local governments to raise money.

But the taxing power of the federal government has been greatly extended by court decisions over the years. Now, key lawmakers in Congress look longingly on exempt interest as a source of additional revenue. They feel the U. S. Supreme Court today would uphold the right of Congress to include income from state and local bonds in the concept of taxable income.

Last week's hearing developed such a variety of views from experts and committee members, however, that a showdown may be indefinitely postponed.

The case for taxing state and local bond interest was put most forcefully by Vance N. Kirby, Northwestern University law professor, and a former Treasury Department official. He estimated that the federal government is losing $600 million a year through the exemption. He attacked the provision as a "shocking violation" of the principle that equal incomes should be taxed equally, arguing that upper-bracket taxpayers derive a benefit denied others.

Mr. Kirby estimated that state and local governments are getting a subsidy of about $400 billion a year from the exemption, in the form of lower interest payments to bond holders. He criticized this as an "erratic and expensive" way to aid public works projects.

Supporting Mr. Kirby were James A. Maxwell, economics professor at Clark University, and Harvey Brazer, economics professor at the University of Michigan. The latter urged the committee to end the interest exemption and substitute a system of direct subsidies.

Mr. Brazer—and all members of the panel—stressed that outlays for public works were rising rapidly and would continue to rise. No one suggested that federal aid, in one form or another, should be decreased, and most panelists argued that it should be stepped up. But Mr. Brazer slashed hard at interest exemption as the way to do it.

He agreed that repeal of the exemption would bring higher interest costs to states and communities, but added that if the exemption were "replaced with a rational program of federal aid for state-local outlays, the higher interest costs could be more than offset," with the Treasury still a gainer, on balance, due to larger tax collections.

Two bond experts and a Washington, D. C., attorney came to the defense of the exemption. The attorney, Northcutt Ely, told the committee that he believed the old constitutional question is as much alive today as ever. He predicted the courts would sustain decisions going back over 65 years.

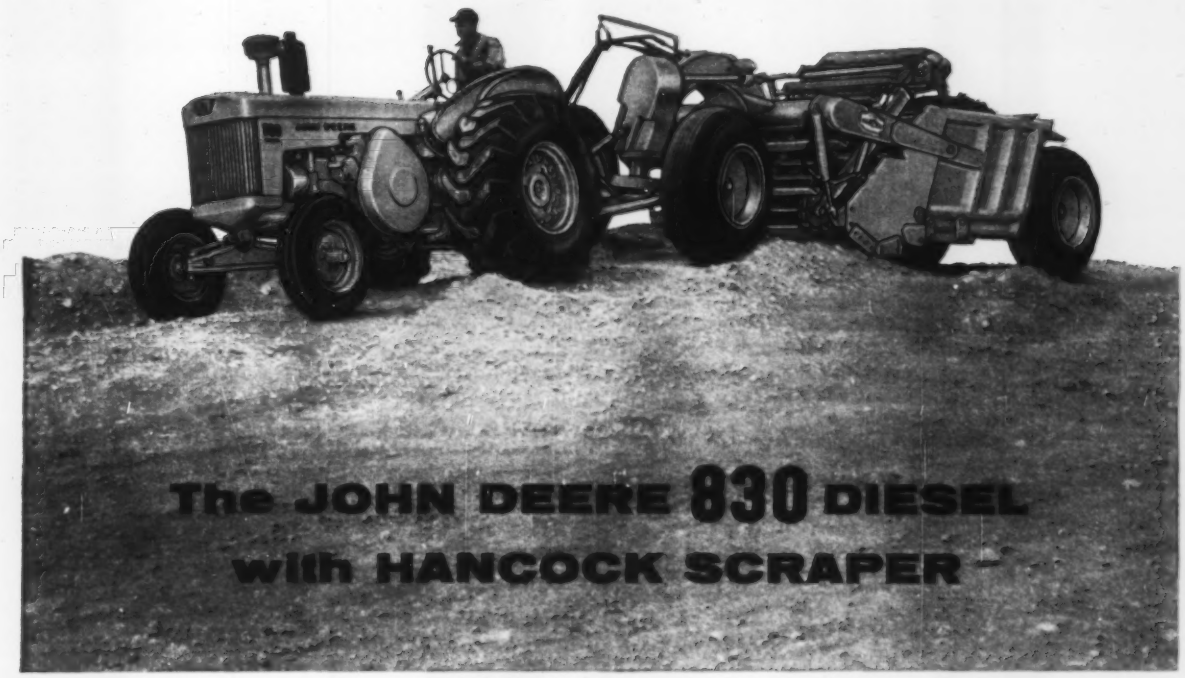
Harry L. Severson, a New York city economist, predicted that "elimination of exemption or even the serious threat of doing so would . . . result in financial chaos." He warned that only the strongest governmental units would be able to issue any bonds for a time, these only at "distressingly high yields."

"During this awkward period, while a different type of security was being worked out and unknown markets were being developed, the capital improvement programs of many communities would grind to a halt," he added.

Cushman McGee of New York City, a specialist in tax exempt bonds, said withdrawal of exemption would create a condition in which some municipalities would be "unable to sell their bonds at all." Others could only at "extraordinarily high interest rates."

Rep. Howard H. Baker (R., Tenn.) and other committee members pressed the panel for reasons why Congress should exempt state and municipal bond interest on one hand, while taxing interest on federal securities. Mr. Baker explained that top-rated municipals are yielding around 3% currently, while comparable federal issues are priced to yield 4%. If special tax treatment were withdrawn from state and municipal bonds, he said, the Treasury would have an easier time with its own issues.

Changing Old Ideas on Earthmoving....



"It takes heavy investment to get an efficient scraper of effective size."

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These old ideas are fading fast in the face of the performance of this John Deere-Hancock outfit.

First, compare the initial cost with other scrapers. See for yourself what you save in dollar outlay, keeping in mind you don't need a pusher tractor to give you a *fully loaded (7-1/2-yard) bowl every time.*

Then, consider the added working efficiency you get with the John Deere-Hancock unit which makes a complete, *continuous turn in less than a 30-foot width.*

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JOHN DEERE "*Specialists in Low-Cost Power with a Heavyweight Punch*"

Court Curbs Wage-Hour Extension

- **Construction of new plant miles away from the owner's existing facility held not covered.**
- **Ruling may slow the Labor Department's effort to get more overtime on new construction work.**

A federal court has squelched, at least temporarily, government efforts to extend the minimum pay and overtime provisions of the Fair Labor Standards Act to a type of construction activity the law hasn't reached before.

The District Court for the Western District of Arkansas has held that the law did not apply to the construction of a new organ plant by the Tune Construction Co. in Fayetteville, Ark., for the Baldwin Piano Co. of Cincinnati.

The decision means that a contractor is not automatically subject to the law just because the new construction is for a concern that is engaged in interstate commerce, perhaps many miles away. It represents a rear guard action against increased government control. But it does not establish any positive guideposts in a labor area blanketed by general confusion.

An attempt was made by the Labor Department in the Tune case to find the contractor guilty of failure to pay overtime at the rate of time and a half for hours in excess of 40 a week.

The department's reasoning, which could set a trap for a number of contractors, went like this:

- Baldwin's Cincinnati plant is clearly engaged in interstate commerce and work at that plant is subject to the Fair Labor Standards Act. The new organ plant in Fayetteville can be considered an extension of the Cincinnati plant, although it is new construction situated many miles away. Therefore it is also covered by the law.
- Baldwin started its Fayetteville operation by setting up a training center on leased property to train workers for the new plant. It did make some organs as part of that program. The new plant was therefore a replacement of an existing facility of interstate commerce and was covered by the law.

Both arguments follow the liberal approach earlier used by the U. S. Supreme Court in the Vollmer case. That decision produced today's confusion by commanding the Labor Department to reject automatic exemption of new construction work and to apply the law to all construction work "so intimately related to the functioning of interstate commerce as to be, in practical effect, a part of it."

The Arkansas court said "nonsense" to both arguments. It turned the Labor Department down on three grounds:

- Common ownership is not a controlling test.
- The Fayetteville plant is not such an extension of the Cincinnati plant as to become an integral part of it. It does not produce the same products and it is hundreds of miles away.
- It is not a replacement of the leased training facility. The latter was set up merely to train new employees for the new plant and the organs it made were a byproduct of that program.

Existing Wage and Hour Division regulations that the decision attempts to illuminate are these:

"Construction of a new factory building, even though its use for interstate production upon completion may be contemplated, will not ordinarily be considered covered. However, if the new building is designed as a replacement of or an addition or improvement to an existing interstate production facility, its construction will be considered subject to the act.

"If the new building, though not physically attached to an existing plant which produces goods for commerce, is designed to be an integral part of the improved, expanded or enlarged plant, the construction, like maintenance and repair, would be subject to the act."

Labor in Brief . . .

• Dip in apprenticeship—Number of registered apprentices in the construction trades fell by 1,500 during the first half of the year and stood at 107,433 on June 30, according to the U. S. Bureau of Apprenticeship and Training. Lathers, painters, roofers were up, cement masons held their own, rest were down.

• Labor seeks water parley—California Labor Federation officials say they cannot support a proposed $1.7-billion bond issue for a state water program "despite the attractive lure of billions of dollars in construction work." Claiming the proposal would "unjustly enrich" large landholders, they have asked for legislative restrictions.

• New look in labor relations?—Curtiss-Wright Corp., which last week announced development of a new internal combustion engine with only two moving parts, called the achievement "another cooperative effort of Curtiss-Wright stockholders, management and labor, working together under the free enterprise system."

• Monitors probe Hoffa—Federal District Court in Washington has granted the board of monitors, appointed to supervise teamster union house cleaning, power to subpoena witnesses and take sworn testimony in an investigation of President Hoffa's handling of union money. Monitors say they hope it may lead to Hoffa's expulsion. Teamsters plan to appeal.

• Alaska organizing drive—United Construction Workers of America has announced formation of United Construction Workers of Alaska. It promises democratic, financially responsible unionism, no political action and no discrimination in hiring.

• Double-crossed?—A local of the operating engineers union, on strike since October 21, resumed picketing of major construction projects in two Indiana counties last week because strike-bound equipment, it said, was being operated by non-engineers. The union had lifted its pickets earlier to enable members of other trades to resume work.

CYANAMID

Explosives News

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Poor fragmentation or unexpected delays in drilling or shooting can eat up the profits on any "hard-rock job".

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From the minute you move in on the job, the Cyanamid explosives engineer is ready to help you make the most of Cyanamid's complete line of high quality explosives, electric blasting caps and accessories.

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AFL Units Spurn Local Mergers

Building trades unions in Toledo and Dayton join other affiliates in sidestepping AFL-CIO unity efforts

The AFL-CIO's first forced labor merger at the local level took place in Toledo, Ohio, last week and drove the building trades unions and a number of others into a forbidden alliance with the expelled and now independent teamsters union.

The estranged group is known as the Mutual Assistance Committee. Its general secretary is John W. Richards, who formerly held the same post in the old AFL Central Labor Union.

Mr. Richards claims that 35 unions out of the 93 formerly affiliated with CLU have joined the antimerger MAC, now headquartered in a building owned by the building trades unions.

First of the construction unions to disaffiliate from CLU in protest against the merger were the painters, bricklayers, carpenters, boilermakers, plumbers, electrical workers, glaziers and lathers.

One of the major stumbling blocks to labor unity is the jurisdictional friction between the building trades and industrial unions. This becomes particularly significant at the time of a merger because of the distribution of relative power between the old AFL and CIO groups in filling offices in the new federation.

This jurisdictional friction, which has kept the national federation on an uneven keel, has been quite noticeable in Ohio for many years.

At the AFL-CIO Building and Construction Trades Department special convention in Atlantic City two years ago, for example, the Ohio delegates strongly supported secession from the AFL-CIO as an alternative to any capitulation on their jurisdictional rights.

The same friction has also torpedoed an AFL-CIO local level merger in Dayton, where the AFL Central Labor Union affiliates made an empty shell of their CLU by walking out before a merger with the CIO Industrial Union Council could be accomplished. Under the leadership of John Briedenbach, CLU president, they have formed a new organization outside the AFL-CIO called the Dayton Council of Labor Unions. Mr. Briedenbach, incidentally, is head of the State Building and Construction Trades Council.

What the AFL-CIO will do about the disaffiliations remains to be seen. Present indications are it will continue to work for labor unity. Said one AFL-CIO spokesman working on the Toledo merger: "We need a united labor movement in this country, in this city, in this state, worse than we've needed it in the history of the labor movement."

How Big Should Bargaining Be?

The National Association of Manufacturers last week came up with a collective bargaining suggestion that has some provocative implications for the construction industry.

President Stanley Hope called for the elimination of industry-wide bargaining on the grounds that it gives "monopolistic" power to the labor movement. And the NAM, questioning the merits of a proposed White House conference on labor-management relations, took the position that labor must be willing to abandon industry-wide bargaining before any such conference can hope to succeed.

NAM's argument is that labor, through expansion of bargaining areas, has acquired too much economic power at the public's expense and that this results in an open invitation to the government to step in and put an end to what has been known as voluntary collective bargaining.

Mr. Hope sees the need for a "concerted campaign" by workers and business executives "to end the monopolistic aspects of the labor union movement."

In contrast to this, there has been a trend promoted by both labor and management in the construction industry to expand the size of bargaining situations. Although the concept of industry-wide bargaining is foreign to the industry, common examples of bargaining expansion are association, group, multi-association, area-wide, state-wide and regional bargaining, as well as the type of top-level, national bargaining that results in national labor agreements.

Some cases have reflected management efforts to "fight fire with fire" as local labor units consolidated into larger ones. Management, in other instances, has pushed the trend for such practical reasons as greater uniformity and stability of labor costs and conditions. Small groups have found the need to pool knowledge and resources in order to cope intelligently with increasingly complicated bargaining issues. Others have found it conducive to more sensible administration of fringe benefits.

All of these factors have some bearing on the extent to which the size of bargaining situations could be whittled down under the NAM proposal.

The problem itself, like NAM demands for abolition of the union shop, is one of the issues that doomed to failure labor-management peace proposals made after the 1955 AFL-CIO merger. Through NAM it has again been raised as an obstacle to, and put on the agenda of, a possible White House conference that would seek to lessen industrial strife.

Tax Ruling Issued

IRS restates withholding law on subsistence pay

Contractors will be required after January 1 to withhold federal income taxes on amounts paid to an employee as daily travel and per diem allowances to cover meals and lodging on construction jobs whenever any one of these situations occurs:

- The employee has worked for "a substantially continuous period of one year" in any particular "project area."
- It is contemplated at the time of hiring that the employee's work "in any particular project area" may continue for more than a year.
- It is apparent that the worker "may reasonably be expected" to continue working for more than one year "in any particular project area."

The withholding requirements appear in an Internal Revenue Service ruling that admits "considerable confusion appears to exist" on the taxability of subsistence payments.

The ruling applies to employer withholding liability only. It does not cover the right of construction workers to deduct their "away from home" expenses for federal income tax purposes. The latter is still covered by the Peurifoy line of cases and regulations—deductible if work away from home is of "temporary" rather than "indefinite" duration.

In both instances, however, the Internal Revenue Service has decided upon the period of one year as the cut-off point for temporary expenses.

The new regulation, when effective, will not be retroactive. The withholding, it says, will apply only to those amounts paid after the withholding liability attaches.

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During 1956, the national total of highway deaths was over 40,000—the highest figure in our history. The cost to the country of these wasted lives is incalculable.

But the picture wasn't entirely black. In many areas—in small towns and big cities—the terrible upward trend was reversed.

This was accomplished by community action—by business leaders, civic organizations, church, fraternal and PTA groups joining together with law enforcement agencies in an all-out attack on traffic deaths.

The figures prove it. Wherever people get together to do something about traffic safety, *deaths go down.*

BACK THE ATTACK ON TRAFFIC ACCIDENTS!

Your company can perform an invaluable service for your community, and for the country as a whole, by pitching in and helping in this life-saving crusade. For full information on what you can do — and how you can do it—write The National Safety Council, Chicago 11, Illinois.

Published in cooperation with
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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.
SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: December 18, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 18th day of DECEMBER 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York						
Saratoga (Rtes. 9 & 67)	FARC 59-168	Clifton Park-Round Lake, S.H. 1795; Mechanicville-Malta, S.H. 610; Malta-Saratoga, S.H. 611 Project F-U-639(17)	7.42	Asph. Conc. Pavt.	$100,000 Plans $5	$1,813,000
Saratoga (Rte. 9)	FARC 59-166	Clifton Park-Round Lake, S.H. 1795, 1795A Project F-FG-639(13)	1.84	Asph. Conc. Pavt. = 1.81 Miles; Misc. Work = 0.03 Mi.; 2 Brs. R.C. Twin Boxes 31' and 30'; 2 RR Sep. Plate Girders 60' and 80'	$82,000 Plans $5	1,495,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery (Rte. 5)	FAC 59-20 FASH 59-25 FARC 59-162	City of Amsterdam: East-West Arterial Highway; Amsterdam East: Rte. 5 Conn. Amsterdam-Cranesville, S.H. 180 and Hoffman-Cranesville, S.H. 5126 Project F-U-349(16)	5.28	Asph. Conc. Type 1A Pavt. = 4.45 Miles; Grad. & Drain = 0.83 Mile; R.R. Sep. 2 Sp. Girder 161.4'	$220,000 Plans $5	$4,036,000
Oneida, Herkimer & Montgomery (Rtes. 5, 28 & 274)	R.C. 59-163	East Creek, S.H. 5139, Br. No. 1; Holland Patent-Frenchville, Pt. 2, S.H. 1546, Br. No. 1; Poland-Trenton, S.H. 5559, Br. No. 2		Clean & Paint 3 Bridges	$1,000 Plans $5	18,000
DISTRICT No. 3, E. E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cortland, Seneca, Oswego & Tompkins (Rtes. 13, 11, 49, 69, 392 & 414)	R.C. 59-164	Truxton-Deruyter, Pt. 1, S.H. 5141, Br. No. 1; Pulaski-Sandy Creek, S.H. 5275, Br. No. 1; Constantia-Cleveland, S.H. 1554, Br. No. 1; Parish-Camden, Pt. 1, S.H. 5226, Br. No. 1; Ithaca-Dryden, Pt. 1, S.H. 681, Br. No. 1 and Br. No. 2 and Seneca Falls Village, S.H. 5100, Bridge No. S-6		Clean & Paint 7 Bridges	$1,000 Plans $5	17,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Jefferson	FASS 59-27	Rives-U.S. 11, Co. Rd. 62 Project S-532(1)	2.13	Asph Conc. Type 1A Pavt. = 2.05 Miles Misc. Work = 0.08 Mi.	$923,000 Plans $5	415,000
St. Lawrence	S.H. 59-26	Horseshoe-Veterans Memorial Hospital	4.10	Bit. Double Surf Treat. Pavement	$12,000 Plans $5	208,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Westchester (Rte. 133)	R.C. 59-165	Mt. Kisco-Millwood, S.H. 587	1.60	Asph. Conc. Pavt.	$12,000 Plans $5	213,000
Westchester (Int. Tour. Rte. 487)	FITS 59-19	Interstate Route Conn. 520 (Cross Westchester Expressway) (Elmsford Section) Project I-487-2(18)	3.12	Traffic Signs & Delineators	$5,000 Plans $5	89,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rtes. 17 & 26)	FARC 59-167	Binghamton City: Vestal Ave. By-Pass FAC 49-8; Court Street-Rte. 17 Conn. FAC 54-17; Brandywine Ave. Extension FAC 52-3 and Brandywine Ave. Extension Pt. 2 FAC 55-6; Brandywine Ave. Extension, FASH 52-8; Brandywine Ave. Extension Pt. 2 (No. Chenango St. Intersect.) FASH 55-4 & Vestal S.H. 420 Project Nos U-496(15), U-1019(5)	5.41	Chain Link & R.O.W. Fencing	$7,000 Plans $5	122,000
Delaware (Rte. 97)	R.C. 59-143	Hancock-Long Eddy, Pt. 1, S.H. 5671, Br. No. 1	0.08	Bridge Repairs	$500 Plans $5	$9,500
DISTRICT No. 10, M. E. GOUL, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Kings, Nassau & Queens (Rtes. 27 & 27A)	FABLP 59-1 FAVWE 59-1	Belt Parkway (Cowanus Parkway to Whitestone Parkway); Van Wyck Expressway (Belt Parkway to Grand Central Parkway) Project U-777(6), U-1085(17)	34.92	Alum. Mall Barrier Rail, Fenc. & Misc. Work	$80,000 Plans $5	1,890,000
Nassau	FAWORE 59-1	Wantagh-Oyster Bay Expressway (Old Country Road, Co. Rd. No. 4 to Jericho Turnpike-Plainview Rd. S.H. 436), Contract No. 1 Project U-1110(2)	3.34 (7.36 Acc.)	9" Colored Cem. Con. Pavt. 2 @ 37' Wide = 3.15 Mi.; Misc. Work = 0.19 Mi. (Acc. = 5.22 Mi. Cem. Conc. Pavt. and 2.14 Mi. Asp. Conc. Pavt.); 3 Hy Sep. Comp. Beams 107.7', 107.1', 95.9', 48' & 131.5'; 1 Hy. Sep. R.C. Rigid Frame 98.3	$350,000 Plans $10	6,570,000
Queens (Int. Tour. Rte. 495)	FIHHE 59-2	Interstate Route Connection No. 514 (Horace Harding Expressway, Sect. I, Cont. 5), (Grand Central Parkway to Parsons Boulevard) Project I-495-1(34)	2.72	Roadside Development	$11,000 Plans $5	198,000
Queens (Int. Tour. Rte. 495)	FIHHE 59-3 FAHHE 59-4	Interstate Route Connection No. 514 (Horace Harding Expressway Section II); Horace Harding Expressway), Sect. II, Cont. 5) Project I-495-1(35), U-862(24)	2.72	Roadside Development	$11,000 Plans $5	198,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: January 7, 1960

Toll Facility and Approach Work McKinley Toll Bridge

INVITATION FOR BIDS
CITY OF VENICE, ILLINOIS
CONTRACT NO. 2

Sealed proposals will be received by the City of Venice, Illinois, in the City Council Room in Venice, until 8:00 P.M. C.S.T. on the 7th day of January 1960, at which time and place they will be publicly opened and read, for the furnishing of all labor, plant and materials, and performing all of the work necessary to complete Contract No. 2, Toll Facility & Approach Work for the McKinley Toll Bridge over the Mississippi River between St. Louis, Missouri, and Venice, Illinois.

Contract documents including plans, specifications, proposal form, and form of contract may be seen at the office of the City Clerk, City of Venice, Illinois, or at the office of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York 17, New York, and copies of same may be secured at the office of Hardesty & Hanover, Consulting Engineers, upon deposit of fifteen dollars ($15.00) which deposit will be refunded upon the return by the bidders of all contract documents in good condition within ten days after date set for receipt of bids.

A proposal guarantee in the form of a proposal bond in the sum of ten percent (10%) of the amount of the bid or in the sum specified in Section 2.7 of the Standard Specifications for Road and Bridge Construction of the State of Illinois, adopted January 2, 1958, whichever is greater, made payable to the City Treasurer of the City of Venice, Illinois, written for a period of ninety (90) days prepared on the form of bond attached hereto, and having as Surety such surety company or companies approved by the City, and authorized to transact business in the States where the work is located, must accompany each bid as a guarantee that the contract will be entered into if awarded.

A Contract Bond in the sum of one hundred (100) percent of the contract price to cover performance, and fifty (50) percent of the contract price to cover the payment of all labor and materials used in the construction of the work will be required.

The City of Venice, reserves the right to reject any or all bids or to accept the ones, that, in its judgment, will be for the best interests of the City of Venice, and to waive informalities.

The CITY OF VENICE, ILLINOIS
By John E. Lee
Mayor

ATTEST:
William M. Ebersoldt
City Clerk

U. S. Government

Department of Commerce, Bureau of Public Roads, November 20, 1959. SEALED BIDS will be received at the office of C. H. Buchanan, Division Engineer, Bureau of Public Roads, First National Bank Building, Florence, Alabama, until 10:00 a.m. C.S.T., JANUARY 7, 1960, for Project 38L, Natchez Trace Parkway, Claiborne County, Mississippi. Grading, Draining, Gravel Base, Box Type Bridges, and other work from Utica-Bogantown Road 10.213 miles to Big Bayou Pierre. The approximate quantities of the more important items are: 1,047,000 cu. yd. Excavation and Borrow, 7,350 cu. yd. Concrete, 1,095,000 lb. Reinforcing Steel, 85,000 tons Gravel, and 70,000 cu. yd. Topsoil. Minimum wage rates have been fixed as required by law. Plans, specifications and bid forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington 4, Virginia. F. W. Cron, Regional Engineer.

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone until January 4, 1960 and will at that time be publicly opened for the following: Furnishing and installing approximately 39 electric towing locomotives and 3 electric cranes for use on Panama Canal Locks to replace existing locomotives and cranes. Plans and specifications are available for examination in Procurement Office, Panama Canal Company, 21 West Street, New York 6, N. Y. Complete sets of data may be obtained upon payment of $25.00 deposit which will be refunded when data are returned. For further information call BOwling Green 9-5380, extension 73. Reference PC 60-21.

OFFICIAL PROPOSALS

Bids: December 12, 1959

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Eastern Standard Time on December 10, 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON RELOCATED ROUTE U.S. 104, IRONDEQUOIT BAY TO WAYNE COUNTY LINE, IRONDEQUOIT BAY BRIDGE, MONROE COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. SM 148.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) Mr. B. F. Perry, District Engineer, New York State Department of Public Works, Barge Canal Terminal, Rochester, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York city.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $100,320.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $5,100.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF
PUBLIC WORKS

Bids: December 11, 1959

Reconditioning, Reshaping and Surface Treatment Route No. 1—South Road Between Kilometers 27 and 65

DIRECTORATE OF HIGHWAYS
MINISTRY OF COMMUNICATIONS AND PUBLIC WORKS
REPUBLIC OF HONDURAS
ADVERTISEMENT FOR BIDS
CONTRACT No. 502—P (DST)

Sealed Proposals for the above noted contract described herein will be received by the Director General of Highways at the offices of the Ministry of Communications and Public Works, Tegucigalpa, D. C. Honduras, C. A., until 10:00 A.M. Honduras Time on December 11, 1959 and then publicly opened.

The work to be done under this Contract shall be commenced on the date specified in the Notice to Proceed, or such earlier date mutually agreed upon by the Ministry and the Contractor. All work under the Contract shall be completed within 240 calendar days after such date, and consists of furnishing all plant, labor, materials and equipment, and performing all work in strict accordance with the Specifications, Schedules and Drawings forming parts thereof, for the Reconditioning, Reshaping and Surface Treatment of the South Road, (Route No. 1), between Kilometers 27 and 65.

Proposals shall be submitted covering all the work on the South Road, (Route No. 1), between Kilometers 27 and 65 as delineated on the Unit Price Schedule Form.

The approximate quantities of the principal items of work are:

Reconditioning and Preparing Subgrade	38 LK
Select Material Base	42,000 CM
Two Course Surface Treatment	312,000 SM

Prospective bidders can obtain copies of the plans, specifications and contract documents for a fee of 50 Lempiras from the Office of the Director General of Highways, nancial Statement and Experience Questionnaire and a Plan and Equipment Questionnaire on form supplied by the Directorate of Tegucigalpa, Honduras. A Contractor's Fi-Highways will be required of all bidders. All proposals must be on the forms prescribed by the Directorate of Highways and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of ten (10) percent of the total amount shown in the Proposal Form Unit Price Schedule in the form and manner specified in the Instruction to Bidders.

Individuals or firms doing business under ficitious names and all foreign corporations shall register with the Ministry of Communications and Public Works, Tegucigalpa, D. C., Honduras, C. A., before any proposals submitted by such corporations, individuals or firms will be considered.

Award of the above contract, if any award be made, will be to the lowest responsible bidder or bidders. The Government reserves the right to reject any and all proposals and further reserves the right to waive any informality in proposals received when such rejection or waiver is in the best interest of the Government.

The Government of Honduras has entered into a Loan Agreement with the International Bank for Reconstruction and Development for a loan in various currencies to finance the foreign exchange costs of a Highway Construction Project of which this contract will form a part. The Government of Honduras has also entered into a Loan Agreement with the Development Loan Fund of the United States Government for a loan to finance the local currency costs of the Project.

DIRECTOR GENERAL OF HIGHWAYS
Ing. Angel Casanova B.
October 19, 1959.

Bids: January 7, 1960

General Repairs McKinley Toll Bridge

INVITATION FOR BIDS
CITY OF VENICE, ILLINOIS
CONTRACT NO. 1

Sealed proposals will be received by the City of Venice, Illinois, in the City Council Room in Venice, until 8:00 P.M. C.S.T. on the 7th day of January, 1960, at which time and place they will be publicly opened and read, for the furnishing of all labor, plant and materials, and performing all of the work necessary to complete Contract No. 1, General Repairs to the McKinley Toll Bridge over the Mississippi River between St. Louis, Missouri, and Venice, Illinois.

Contract documents including plans, specifications, proposal form, and form of contract may be seen at the office of the City Clerk, City of Venice, Illinois, or at the office of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York 17, N. Y., and copies of same may be secured at the office of Hardesty & Hanover, Consulting Engineers, upon deposit of fifteen dollars ($15.00) which deposit will be refunded upon the return by the bidders of all contract documents in good condition within ten days after date set for receipt of bids.

A proposal guarantee in the form of a proposal bond in the sum of ten percent (10%) of the amount of the bid or in the sum specified in Section 2.7 of the Standard Specifications for Road and Bridge Construction of the State of Illinois, adopted January 2, 1958, whichever is greater, made payable to the City Treasurer of the City of Venice, Illinois, written for a period of ninety (90) days, prepared on the form of bond attached hereto, and having as Surety such surety company or companies approved by the City, and authorized to transact business in the States where the work is located, must accompany each bid as a guarantee that the contract will be entered into if awarded.

Contract Bond in the sum of one hundred (100) percent of the contract price to cover performance, and fifty (50) percent of the contract price to cover the payment of all labor and materials used in the construction of the work will be required.

The City of Venice reserves the right to reject any or all bids or to accept the ones, that, in its judgment, will be for the best interest of the City of Venice, and to waive informalities.

CITY OF VENICE, ILLINOIS
By John E. Lee
Mayor

ATTEST:
William M. Ebersoldt
City Clerk

OFFICIAL PROPOSALS

Bids: December 17, 1959.

Furnishing and Delivery of Gates, Stop Logs and Gate Transfer Car for Intakes in Waterways

POWER AUTHORITY OF THE STATE OF NEW YORK ADVERTISEMENT FOR PROPOSALS
SPECIFICATION NO. PA-N-23037
NIAGARA CONTRACT NO. NP46

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof f.o.b. destination, Niagara Falls, Niagara County, New York of the Gates, Stop Logs and Gate Transfer Car for Intakes in Waterways until 10:30 A. M. Eastern Standard Time on the 17th day of December, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating and delivery thereof of approximately 1,530 tons of structural steel gates, stop logs and gate transfer car for intakes in Waterways.

Delivery of the above items shall be completed on or before May 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
PA-N-23037 GENERAL MANAGER

Bids: See advertisement

Contract EP-110.002 and NYA-410.007

THE PORT OF NEW YORK AUTHORITY

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract EP-110.002—Elizabeth-Port Authority Piers—Fill—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, December 22, 1959.

Contract NYA-410.007—New York International Airport—International Arrival and Airline Wing Buildings and Central Terminal Area—Miscellaneous Alterations—No deposit required—Bids will be received until 2:30 P.M. on Tuesday, December 29, 1959.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payment shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, December 3, 1959

OFFICIAL PROPOSALS

Bids: December 17, 1959

Holland Tunnel Cleaning of Water Mains

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 529

Sealed proposals for furnishing all labor, material and equipment for the cleaning of the 6" low pressure water supply system at the Holland Tunnel from the shut off valve at the Jersey City Main in 12th Street adjacent to the toll house to the connection to the two standpipe booster pumps in the New Jersey Land Building, and the 6" high pressure piping system and the 2-4" risers in the New Jersey Land Building at the Holland Tunnel will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York until 11:00 A.M. Thursday, December 17, 1959, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, which will furnish and contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, December 3, 1959

Bids: December 16, 1959

Narrows Bridge Piers

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows;
Until 11 A.M. on Wednesday, December 2, 1959

For Narrows Bridge Contract No. NB-1B, Brooklyn Tower Pier. The bid must be accompanied by a deposit in the amount of $250,000.00

and

For Narrows Bridge Contract No. NB-1S, Staten Island Tower Pier. The bid must be accompanied by a deposit in the amount of $250,000.00.

Bidders may submit bids for either one or both of the above contracts.

Piers will be founded on open dredged caissons in The Narrows, New York Bay. Alternate design for Brooklyn pier provides shallow open dredged caisson supported on 36" diameter piles to rock.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

** Opening Date for bids on Contract NB-1B and NB-1S has been changed from Dec. 2nd to Dec. 16th.*

Bids: December 14, 1959

Additional Deep Well and Well Pumping Equipment

THE EASTON UTILITIES COMMISSION, EASTON, MARYLAND

Sealed bids addressed to the President and Commissioners of the Easton Utilities Commission, Municipal Office Building, Easton, Maryland and endorsed "Proposal for Additional Deep Well and Well Pumping Equipment" will be received at their office in the Municipal Office Building, Easton, Maryland until 8:00 P.M. E.S.T. on Monday, December 14, 1959, at which time bids will be publicly opened and read.

The work for which proposals are invited comprises the furnishing, constructing and installing, complete, of an additional deep well and well pumping equipment, together with appurtenant work at Easton, Maryland.

Drawings, Contract Documents and Specifications may be obtained at the Municipal Office Building in Easton, Maryland, and copies thereof obtained upon payment of

OFFICIAL PROPOSALS

$5.00 for each set. This amount will not be refunded.

A performance bond in the amount of the Contract price will be required of the successful bidder.

Each bid must be accompanied by a certified check in the amount of not less than five per centum (5%) of the total bid amount. Such check will be returned to all except the three lowest bidders within three days after the formal opening of bids. The remaining checks will be returned upon execution of the Contract.

The President and Commissioners reserve the right to reject any or all bids, and to accept any proposal which they deem to be in the interest of the Commission and the Town of Easton.

Proposals or bids, when filed, may not be withdrawn for a period of 30 days after the scheduled date for receipt of bids.

By order of the President and Commissioners of the Easton Utilities Commission, Robert T. Regester, Inc.

Consulting Engineers
C. Robert Bowens
President
Sheldon E. Dietert
Secretary-Treasurer
William H. Corkran, Jr.
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Capable of responsible charge of investigations, reports and design for growing consulting sanitary engineering firm. Minimum of ten years' experience. Salary fully commensurate with qualifications. Excellent opportunity for advancement. Boston location. Complete resume in confidence.

P-3028, Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

A GENERAL CONSTRUCTION
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Fully experienced estimator on competitive bidding. Splendid opportunity with one of Pittsburgh's leading construction firms. Profit sharing and retirement plan. Send complete resume of experience and qualifications.

P-3033, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CONSTRUCTION MANAGER

With heavy experience background in dams, tunnels and hydroelectric projects. Work domestic or foreign. Salary commensurate with experience. Write:

P-3097, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

POSITIONS WANTED

Project Engineer—Power plant, heavy and building construction. Age 32. Have worked 10 years for constructors, contractors and architect-engineers. Ambitious, will accept any location or invest in company. Graduate civil engineer. PW-3074, Engineering News-Record.

Construction Supt. 32 years of construction experience in Commercial, Public and Industrial. Will assume responsibility with integrity. Location preference Southeast—best references. PW-3144, Engineering News-Record.

Structural Steel: 25 yrs. experience ranging from detailer thru chief draftsman. Prefer supervision or checker. PW-3143, Engineering News-Record.

Chief Struct.—Civil Engineer, age 32, registered 4 states, 10 yrs. experience in Consulting & Construction. Last 4½ yrs., Dept. Head with A & E, project coordinator, supervisor, negotiator on design of commercial, industrial, and military projects. Desires position in industrial expansion program or Consulting. PW-3109, Engineering News-Record.

Manager of Construction—10 years experience in management of construction and design on Industrial, Commercial and Federal Projects. Graduate C.E., 36 yrs. old, married, available soon for permanent position. PW-3122, Engineering News-Record.

Location and Design Specialist—From Reconnaissance to final plans—Photogrametric computer and/or standard survey methods—Salary or contract—Domestic or foreign—Available Feb. 1-60. PW-3088, Engineering News-Record.

Construction Executive: Top level only. 23 years experience all phases General Contracting. Gen. Supt., Project Eng., Cost Eng. & Purchasing on Highway & Heavy Industrial. Married: well educated with ability to handle complete projects estimate to closing. PW-3089, Engineering News-Record.

General Superintendent, 25 years experience, Industrial, Public, and Commercial buildings. Includes all phases of construction. Estimating, organizing, completions, negotiations for extras etc. Minimum salary $15,000.00. PW-2925, Engineering News-Record.

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Reply in confidence to:

Industrial Relations Manager
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PRODUCTION MANAGER
METALS INDUSTRY

For position as superintendent of industrial metals installation in Southeastern Penna., Mechanical or Civil Engineering background desirable. Experience in steel mill or foundry with heavy materials handling equipment is helpful. This is #1 position with complete responsibility for local operation of national company. Send resume with salary desired to

P-3161, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

MANAGER

Engineering, Contracting Company, well financed, good reputation, needs general manager. Good opportunity available for a man experienced in industrial, petrochemical and refinery engineering and construction. All replies held in confidence. Submit resume to P. O. Box 2963, Houston 1, Texas.

POSITIONS WANTED

Superintendent—Estimator—Engineer C.E. P.E. L.S. (N.J.) experienced public works utilities bridges paving desired position general contractor, N. J. PW-3121, Engineering News-Record.

Top estimator. Qualified to act as Chief Estimator. Able to take the lead, be responsible for take-off, pricing, completing bid. Broad competitive exp. all types Bldg. Construction; purchases, sub-contrs, job planning, expediting PW-3154, Engineering News-Record.

Administration Executive, 28, married, BBA Degree, 3 years Indus. Engr. credit. Presently assoc. small Gen. Contractor. Responsibility financing, estimating, sub-contracts, securing prices and materials. Wish position medium or large well-financed firm. PW-3174, Engineering News-Record.

Foreman—Drilling & Blasting, B.S.I.T., Licensed, age 31, 8 years experienced hard rock, soft rock and demolition. Can furnish truck and tools. Free to travel. Available immediately. PW-3176, Engineering News-Record.

Construction Superintendent — Experienced Public Works—New York area—Full charge. PW-3198, Engineering News-Record.

Graduate Civil would like to find position in Washington, D. C. area. Registered several states, age 32. Experience mostly struct. design, chiefly bridges, incl. prestressed concr. Have had some training in administration. Current salary over $9000. Seek change only because present posn. not interesting. PW-3200, Engineering News-Record.

Grading Superintendent. Experienced Engineering, Estimating: Highway, levie and dam construction. PW-3201, Engineering News-Record.

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• POSITIONS VACANT

Civil Engineer—experienced in surveying, preparing plans for municipal improvements and inspection of municipal improvements for Town Engineer's office. Starting salary $5,000.00-$6,000.00 depending upon qualifications. Submit resume to L. M. Collins, Town Engineer, Westfield, New Jersey.

Soils Engineer; prefer M. S. with minimum of 2 yrs experience. U. S. citizen. Reply in full giving availability and salary desired. Goodkind and O'Dea Inc., 108 W. Lake St., Chicago, Ill.

Civil Engineer registered in Pennsylvania— experienced in handling complete engineering of land subdivisions, road, storm & sanitary, client & municipal contact. Excellent future for ambitious man. Small, well established firm, suburban Philadelphia. Furnish resume and salary range. P-3133, Engineering News-Record.

Civil Engineer (Structural): The City of Miami, Florida, is accepting applications from qualified applicants in order to conduct an unassembled-written examination on December 29th, 1959, in all major cities of the United States, for the purpose of establishing a register for the Civil Service classification of Civil Engineer II (Structural). The in-hiring rate of pay is $534 per month plus $25 per month cost of living bonus, with annual step increases up to $660 per month plus $25 per month cost of living bonus. Age 27-50 years. Education and experience requirements: BS Degree in engineering plus five (5) years progressive Civil Engineering experience, four of which must have been in the design of reinforced, prestressed concrete and steel structures—or—nine (9) years progressive experience in the work described above. Send summary of qualifications, experience and transcript of college credits to: Robert A. Richmond, Examining Supervisor, City of Miami Civil Service Office, 3318 Pan American Drive, Miami 33, Florida.

Wanted—Competent Engineers to prepare sewer and water-works plans and plans for water and sewage treatment plants. Must be experienced, reliable and trustworthy. Give education, experience, references and salary required and when can report. Position permanent, opportunities dependent on applicant. P-3152, Engineering News-Record.

Graduate Engineers for superintendents or assistant superintendents for field construction on medium sized government contracts in Rocky Mountain area. Minimum 3 years experience. Contracting firm with backlog of varied work, no heavy construction or building. Resume to P-3173, Engineering News-Record.

Wanted: Estimator and expeditor for long established general construction company operating in northeastern Ohio. Good opportunity for person who can qualify. Prefer man 30 to 45 years of age. Must have highest of references. P-3189, Engineering News-Record.

Field Engineer-Graduate Civil Engineer for permanent position with Major Gas Transmission Company located in Midwest. Age to 35. Experience in office design, location and property surveys. Must travel. P-3191, Engineering News-Record.

Pipe Line Surveyor—Major Gas Transmission Company, headquarters in Midwest. Age to 35. Experience in pipe line location, office and field drafting necessary. P-3197, Engineering News-Record.

Engineer—Structural Steel Sales Promotion we are searching for young Civil or Architectural Engineer, preferably under 30, to engage in technical and promotional work with customers of the structural steel fabricating industry. Headquarters will be in our Regional Office at Los Angeles, California. Some travel required through Southern California and Arizona. Applicants should have a B.S. in C.E. or A.E. and preferably be registered in California. Experience in steel design and construction with a consulting engineer or structural steel fabricator desirable. Salary open, depending upon experience. Insurance and retirement plans available. Send complete resume, recent photo if available, and salary requirements by mail to American Institute of Steel Construction, Inc., 101 Park Avenue, New York 17, New York.

POSITIONS VACANT

Estimator-Application Engineer—Experienced in estimating instrument packages. We are a progressive Chicago area engineering and construction firm, specializing in the sale of packaged control systems for industrial processes. For more details, send complete resume to Mr. Wecker, Panellit, Inc., 7401 North Hamlin, Skokie, Illinois.

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Construction Supt. General Construction. PW-8896, Engineering News-Record.

Civil Engineer, Construction executive, Canadian, 41, thirteen years Latin American experience, available on short notice for local or foreign assignment. Resume on request. PW-3013, Engineering News-Record.

POSITIONS WANTED

Civil Engineer—Danish—Age 30—married, with 8 years of experience in U.S.A. and North Africa as a Highway Engineer and Designer with leading companies. Languages: English, French, Danish, some German and Arabic. Resume on request. PW-2978, Engineering News-Record.

Sanitary Engineer with excellent health and 37 years broad experience in all phases of sanitary engineering will be available after Feb. 1, 1960. Can train personnel and handle projects from inception to finish. PW-2980, Engineering News-Record.

Analyst-Engineer: Experienced estimates, costs, budgets, forecasts on steam generating, chemical-metallurgical, foundry, heavy industrial plant construction and operations; special studies investments, litigation; background financial-securities analysis; present salary, $10,600. PW-3071, Engineering News-Record.

Project Management, Contract Negotiation and Administration, 20 years exp. heavy-construction, U. S. and O. S. PW-3054, Engineering News-Record.

(Continued on opposite page)

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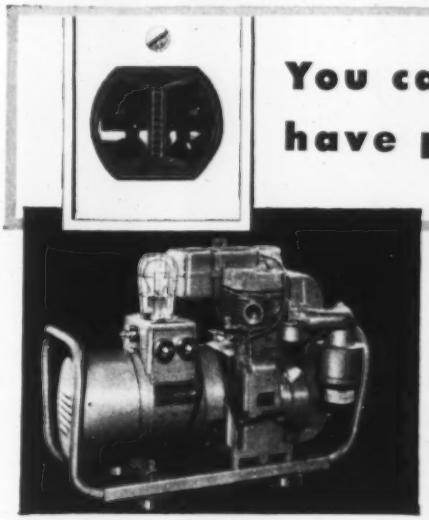

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Let's Have That Conference

HOPE FOR A White House conference on labor-management problems should not be abandoned because some leaders in industry either expect too much or are skeptical of its success. That such a conference is needed was stressed in an editorial on this page Nov. 5. Since then, AFL-CIO President George Meany has written to President Eisenhower proposing the White House conference, and President Eisenhower has asked Secretary of Labor Mitchell to explore the arrangements for it. In effect, labor's initiative in the matter has put success in arranging the conference largely up to management, through the good offices of the Secretary of Labor.

There is also hope that if such a conference can be arranged it can do some good. There must be such hope, or the conference should not be held, and it certainly needs to be held. We will not share in the despair expressed in some corners over whether this summit conference for labor and management will come about. It must. Nor will we share in the despair expressed over possible results. The conference can and should produce some good results.

In the earlier editorial on need for this conference we likened it to the White House Conference on Education of a few years ago. That one did not solve all the nation's education problems, but it dramatized these problems, let the public know they existed and aired many suggested solutions. Such a top-level conference on the nation's labor-management problems could do at least that much.

Of course, the nature of this proposed meeting is yet to be established. Its purpose has been stated as seeking "guiding lines for just and harmonious labor-management relations." President Eisenhower says he and his Administration have recognized for some time the need for better communication between labor and management—away from the bargaining table. Communication is perhaps primarily needed on problems raised by technological changes and on the question of work rules that may be wasteful. Other questions exist—so many and so complex are they that this year's major collective bargaining sessions unfortunately have been conducted in what's been called an atmosphere of class warfare (ENR Nov. 26, p. 97).

Mr. Meany, in proposing the White House conference, suggests there are guide lines to be established for collective bargaining beyond which neither side could go without inviting public censure. Such guide lines should surely be established, and interests of the public should help establish them. The conference Mr. Meany proposes would not have participation of representatives of the public. Perhaps it should. Government would have but an advisory role. That may be enough.

The important thing for now is that the public urge the government to press arrangements for the conference that labor has had the initiative to propose. Every attempt should be made to avoid a sectarian approach. Further, management in the construction industry should give willing, immediate support to the Secretary of Labor in his study of the conference proposal. Employer groups in construction can point to the relative successes of their own top-level meetings with labor representatives. The three prime examples, of course, are the National Joint Board for the Settlement of Jurisdictional Disputes, the Ten Commandments—a code aimed to impose reasonable work practices—and the Construction Industry Joint Conference—primarily a cooperative effort to promote construction by contract and to explore other problems of mutual concern.

Construction's management (and its labor) should enter into the White House conference, if it can be arranged, realistically, but optimistic that it can possibly do real good. Construction's labor and management should, in fact, be prepared, in view of experience in their own industry, to assume a role of leadership in any such effort to end the class warfare that unfortunately is being waged.

A Deep Secret

DRIVING ON SOME of the tollroads in the East leads one to conclude that the amount of toll to be collected at many of the toll gates is considered by the tollroad authorities to be a deep secret, not to be revealed to the users of the tollroads until they are almost up to the toll gate. This unfortunate situation exists at many toll bridges and tunnels across the country, and quite unnecessarily, it is even found on turnpikes where the operators have full control of access to their gates.

These tollroads have many signs warning the motorist that there is a toll gate ahead, but at many of the gates the amount of toll the user will have to pay is not made known to the driver until he is near or on the gate plaza. A good example is the toll gate at the east end of the big Tappan Zee Bridge over the Hudson River on the New York State Thruway. The first sign telling the eastbound driver that the toll is 50 cents is on the toll gate structure itself. The resulting hurried fumbling to get out the right change creates a traffic hazard and is the cause of needless delay.

This cause for delay can be eliminated easily. All that is required is to attach a small sign saying "Toll 50 cents" or "Toll 25 cents" to the post of the first sign warning the users that they are approaching a toll gate. Many more drivers would use the "Exact Change" lanes and toss their tolls into the automatic collectors if they were given more time to get the required amount of money out of their change pockets.

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2.

As boys are wont to, Tully, Jr. flouted Dad's advice—
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3.

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4.

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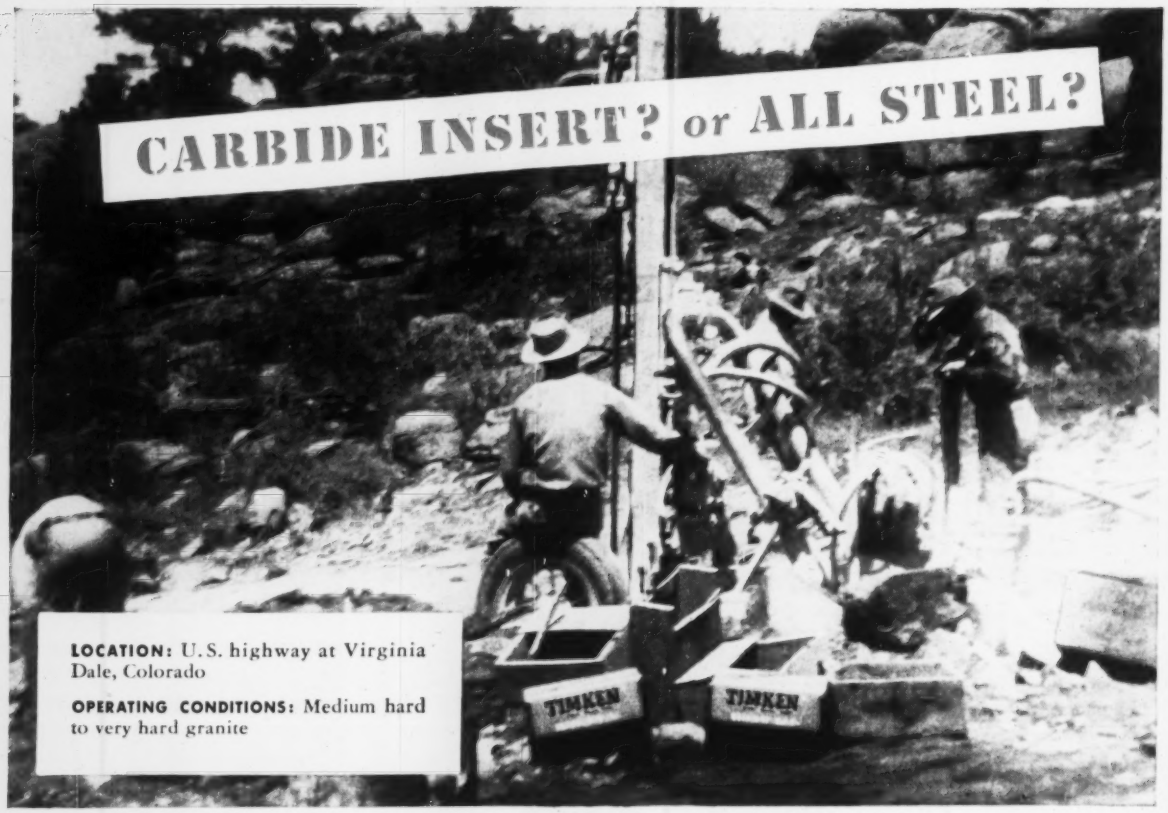
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OPERATING CONDITIONS: Medium hard to very hard granite
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